

amendment to the text, and the Russian Federation suggested changing all the references to 'waters' to 'territorial seas and Exclusive Economic Zones'. This was accepted by St Lucia on behalf of the (co)-sponsors. The Resolution, shown in Appendix 5 as amended, was then put to the vote and adopted, with 16 in favour, 3 against and 14 abstentions.

Explanations of their no votes were given by Australia, Mexico and USA on the grounds that they did not think it appropriate to deal with the issue by resolution. Spain, Sweden and South Africa abstained on the same grounds. Japan stated its vote should not be interpreted to affect its position with regard to IWC competence on small cetaceans.

10. ABORIGINAL SUBSISTENCE WHALING

10.1 Report of the Scientific Committee

The Chairman of the Scientific Committee presented an extract from his Committee's report summarising the work of the Sub-committee on Aboriginal Subsistence Whaling to the Commission's Sub-committee and this was considered under the appropriate Agenda items recorded below.

10.2 Report of Aboriginal Subsistence Whaling Sub-committee

10.2.1 Aboriginal subsistence whaling scheme

Last year the Commission asked the Scientific Committee to investigate potential management regimes for aboriginal subsistence whaling. The Scientific Committee reviewed the existing scheme and discussed possible approaches to develop any new scheme. The Scientific Committee recommended that a Steering Group be established to examine a number of items – terminology, data and information, generic versus case-specific approaches, incorporation of 'need', risk and performance criteria and associated statistics, a framework for testing, and definition of a first set of simulation trials. On the question of need the Scientific Committee suggested a number of approaches for further investigation.

The Scientific Committee considered it would be difficult to make substantial progress at an Annual Meeting on a new scheme and recommended that a three day Workshop be held immediately prior to the 1996 Annual Meeting to address this subject.

During the discussion of the Report of the Scientific Committee some delegations saw no urgent need to change the present system. One delegation drew attention to the Scientific Committee's conclusion that the current system was successfully implemented for the bowhead stock. Delegations expressed various preferences as to how the question of need should be addressed but the Sub-committee did accept the recommendation to set up a Steering Group and hold a three day Workshop.

In the Commission, Spain, Brazil, Switzerland, Japan, Netherlands and the USA expressed their support for the approach being adopted by the Scientific Committee. Denmark saw no problem in an increase in catch limits if they are sustainable and meet recognised needs, and thought any discussion should take place after completion of the RMS. Australia on the other hand suggested that this issue remain a high priority for the Scientific Committee. India believed that the subsistence communities are evolving and that aboriginal whaling should be phased out gradually. The Russian Federation stated its view that the current management scheme has been effective and there is no need for a new management scheme.

10.2.2 Carry-over of strikes in the Bering-Chukchi-Beaufort Seas stock of bowhead whales catch limit

The Scientific Committee recognised that there is an existing scheme that regulates the carry-over of unused strikes and recommended that any proposed alternative aboriginal whaling management scheme should consider the incorporation of this. The Sub-committee agreed with this recommendation.

Australia reminded the Commission that it had requested consideration of this matter from last year because of a difference of interpretation of the Schedule amendment adopted. It suggested that there should be a simple rule that a maximum of ten strikes could be carried forward between years. This interpretation was shared by New Zealand, but the USA thought that unused strikes from any earlier years could be carried forward so long as the total did not exceed ten. It emphasised that carry-overs give flexibility to accommodate the needs of the communities. Brazil voiced its concern that carry-overs defeat the idea of quotas, there appeared to be no scheme as such, and preferred the Australian interpretation. Oman felt there was no reason to transfer an unused quota because the need for that year had been met.

10.2.3 Annual review of aboriginal subsistence whaling catch limits

10.2.3.1 BERING-CHUKCHI-BEAUFORT SEAS STOCK OF BOWHEAD WHALES

After reviewing the methodology used by the Scientific Committee, the Sub-committee saw no reason to change the management advice given. The Netherlands recalled that a number of countries had expressed reservations the previous year about the meat yield that catches of this stock represented and the need for observer schemes and asked for further information. The USA said that information on meat yield had been provided last year and that it always invited observer participation.

10.2.3.2 NORTH PACIFIC EASTERN STOCK OF GRAY WHALES

New Zealand said that it understood that the vessel previously being used for catching operations was no longer in service, and that the local community had reverted to using smaller vessels and hand-held harpoons. This could have implications for strike and catch rates. The Chairman of the Scientific Committee said that the take for the stock was below the level that might cause concern. The change in hunting methods had been brought to the attention of the Scientific Committee, but it was unable to assess its implications on the basis of available information. The Scientific Committee would welcome further data from Russia. The Russian Federation indicated that the data for 1994 would be made available shortly, and in response to further questioning by New Zealand in the Commission, reviewed the data already submitted and indicated that the government was unaware of any whales being struck but not landed.

The UK said that when the Commission had set quotas for the stock the previous year, papers submitted by the Russian Federation had made it clear that the bone and blubber from the whales were used in fur farms but the meat was for human consumption. The UK had raised its concerns with the Russian Federation about recent allegations that the meat was given to fur farms and hoped the Russian Federation would be able to respond. The Russian Federation informed the Sub-committee that it expected that the information for

1994 on this: issue could be made available shortly and reiterated the relevant information submitted last year when the UK repeated its request in the Commission.

10.2.3.3 OTHER BUSINESS

St Vincent and the Grenadines reported that no catches had been taken this year.

The USA said that following the recovery of the Eastern Pacific stock of gray whales the Makah Indian Tribe had expressed an interest in taking five gray whales for ceremonial and subsistence purposes. The USA might therefore wish to submit a formal proposal for this at a future date. The Russian Federation said that at the 1996 Annual Meeting it would request an aboriginal subsistence annual quota of five Greenland (bowhead) whales within the framework of the existing quota. Brazil expressed disappointment that aboriginal whaling was on the increase.

In the Commission, Australia looked forward to examining the assessment of need on which the proposed catch may be based after 50 years without whaling by the Makah tribe. The Netherlands, Mexico, Spain, Switzerland and Oman associated themselves with this view and the concern over the proposed increase in the catches. Norway stated its emphasis on using the present stability of catches and the recovery of the stock, rather than whaling conducted many years ago, for setting a quota. Japan commented that after eight years of demonstrating its need it had again been ignored this year.

10.3 Action arising

No other actions were taken beyond those noted above.

11. COMPREHENSIVE ASSESSMENT OF WHALE STOCKS

11.1 Report of the Scientific Committee

The Chairman of the Scientific Committee, Dr S. Reilly, presented the Committee's report on the following items, summarised below with the Technical Committee's comments and discussions.

11.1.1 Revised Management Procedure

GUIDELINES FOR SURVEYS

At its meeting last year, the Commission adopted Resolution 1994-S that asked for further elaboration of the 'Guidelines for conducting vessel surveys and analysing data within the Revised Management Scheme' given in Annex J (*Rep. int. Whal. Commn* 44: 168-74) as endorsed by the Commission, to ensure adequate levels of international collaboration in the survey design, conduct and analysis.

The Scientific Committee agreed that international collaboration should be considered in the context of the way in which the Committee needs to conduct its business with respect to conducting surveys and analysing data. Noting that more specific aspects of the Scientific Committee's work may require further discussion, the Scientific Committee proposed amendments of the Guidelines to take account of the Commission's request, whilst recognising that further updating may be required next year. It noted that in agreeing the Guidelines in 1993, the intention had been for their annual review.

ESTIMATION OF $g(0)$, PROCESS ERROR AND PRESENTATION OF TRIAL RESULTS

The Scientific Committee discussed a number of improvements in methodology relating to abundance estimation and, in particular, developed a set of working

guidelines for future surveys where it was expected that the probability of sighting a whale on the trackline would be less than 1.

The Scientific Committee also identified further work to be carried out on the questions of process error and the presentation of trial results.

GUIDELINES FOR DATA COLLECTION AND ANALYSIS- OPERATIONAL DATA

The present guidelines state that those operational data currently specified in the Schedule shall be collected and reported but that the Scientific Committee should refine specific data needs.

The Scientific Committee agreed that a review of existing and new methods for collecting operational data was an important prerequisite in refining specific data needs. Those countries involved in whaling operations were encouraged to submit such reviews so that this matter could be resolved.

PREPARATIONS FOR IMPLEMENTATION

The Scientific Committee examined the question of the interpretation of implementation simulation trials. At present this is carried out by 'human integration' of results, primarily giving advice based on 'worst cases'. Integration across the results of alternative hypotheses using weighted probabilities had not been attempted because it was extremely difficult to see exactly how this should be done. The Scientific Committee agreed in principle that developing such approaches would be desirable and looked forward to further developments which could enable their practical application.

The Scientific Committee also addressed the question of plausible hypotheses for sub-stock structure and examined a number of criteria to take into account when formulating hypotheses about 'sub-stocks' for use in implementation trials.

11.1.2 Southern Hemisphere baleen whales

The main focus of the Scientific Committee's work concerned its continuing assessment of Southern Hemisphere humpback whales.

The Scientific Committee examined both the availability of photo-identification data and the value of establishing a central catalogue. The Scientific Committee agreed to two recommendations in this regard and the possibility of awarding a contract study to facilitate such work will be considered further next year.

The Scientific Committee examined the usefulness of photo-identification studies, particularly with respect to abundance estimation. It developed a series of guidelines to be considered when carrying out such work.

The Scientific Committee reviewed progress on both short- and long-term assessment work, particularly with respect to historical data and abundance estimates (from shore-based and IDCR surveys).

The Scientific Committee welcomed further information to that which it received last year, with respect to the Soviet Antarctic pelagic whaling data after World War II. It also received information on undeclared catches of humpback whales in the Arabian Sea by the former USSR between 1963-66, and on an undeclared catch of sperm whales off Ecuador-Peru by Germany in 1938.

The catch history revision of USSR Southern Hemisphere whaling provoked a series of exchanges in the Technical Committee, initiated by Japan asking if the new data

requests for information and invitations to take appropriate action; congratulated the People's Republic of China and Mexico on the actions that they are taking to protect two of the world's most endangered cetaceans, the baiji and vaquita; and commended the Scientific Committee for the valuable work that it does and encouraged it to continue its efforts. While recognising the differences of view on regulatory competence, the common theme is the need for cooperation to conserve and restore depleted stocks.

Mexico indicated its willingness to join a consensus on this Resolution while noting its position regarding IWC competence on small cetaceans. Japan pointed out its objections to previous Resolutions; dealing with the management of Dall's porpoise, but would not block a consensus. The People's Republic of China outlined its efforts to protect the 100-150 baiji remaining. It had no instructions to discuss the baiji in this meeting, a freshwater species outside IWC competence, but will report back on the Resolution and seek to submit relevant information to the next Annual Meeting. St Vincent and The Grenadines and Denmark recorded their reservations, on the competence question, and the Russian Federation noted its position on the management and financial issues. Sweden informed the Commission that it had taken on special responsibility for the endangered population of harbour porpoise in the Baltic Sea. St Lucia, supported by Grenada, recalled the strong Resolution last year from the Caribbean states.

The Resolution shown in Appendix 4 was then adopted by consensus.

10. ABORIGINAL SUBSISTENCE WHALING

10.1 Report of Aboriginal Subsistence Whaling Sub-committee

The Aboriginal Subsistence Sub-committee met under the Chairmanship of Mr J. McLay (New Zealand). It considered the relevant Commission agenda items and also a request from St Vincent and The Grenadines for a catch of two North Atlantic humpback whales for the 1996/7 to 1998/9 seasons.

10.2 Aboriginal subsistence whaling scheme

10.2.1 Report of the Scientific Committee

Dr S. Reilly, Chairman of the Scientific Committee, reported on the continuation of work begun last year to draw up an Aboriginal Subsistence Whaling Management Procedure (AWMP). Two working papers were tabled to the Aboriginal Subsistence Whaling Sub-committee by G. Donovan, the Secretariat's Scientific Editor, summarising the Scientific Committee's work thus far and inviting Commission input. One outlined the objectives and rationale of the procedure, summarised as:

- (1) to ensure that the risk of extinction to an individual stock is not seriously increased by subsistence;
- (2) to enable harvesting in perpetuity at appropriate levels;
- (3) to maintain the stocks at or above an optimum level (giving highest net recruitment), or if they are below it, ensuring that they move towards that level;
- (4) highest priority will be given to Objective 1.

The other document noted that the Scientific Committee had addressed the issue of need and sought guidance from the Commission. The Chairman suggested that focus of discussion should be first on establishing procedures to provide feedback to the Scientific Committee and secondly

on specific guidance on the type of need envelope to consider.

Denmark emphasised the crucial importance of hunter input to the decision making process, and urged that the Convenor of the standing Sub-committee should have experience in dealing with both cultural and nutritional aspects of needs matters in aboriginal subsistence whaling. Switzerland said that it had always stressed that the category of aboriginal whaling should be subject to a suitable management scheme. Mexico expressed similar views and the need for rapid progress. Such a scheme would enable the IWC to take decisions in a clear, transparent and objective manner. The UK also supported the process. As to progressing the development of the scheme, it felt an intersessional workshop would be sensible, at an appropriate stage. On needs, it saw the desirability of developing a model purely to demonstrate the possible effect on stocks of various levels of need, but noted that need could not be addressed entirely on a scientific basis. New Zealand welcomed progress and emphasised the need for transparency and comparability to the RMS and asked about the relative levels of risk in the generic part of the AWMP; i.e. Objectives 1 and 3. The Netherlands considered it important to continue this work and supported an intersessional workshop. It noted that the target level in Objective 3 was 72%, as in the RMP. It also flagged the need to consider how to take account of stocks which might be subject to both an aboriginal and a commercial catch. Spain and the People's Republic of China supported work on the development of a management scheme for aboriginal subsistence whaling.

The Russian Federation expressed doubts about such a scheme and considered the IWC should give priority to the RMP. It considered that it would be difficult to consider all aboriginal subsistence needs under one general scheme and did not favour an intersessional workshop. The USA supported the existing management plan for aboriginal subsistence whaling, but indicated it would participate in the development of a management scheme and an intersessional workshop. Denmark agreed that the present system was functioning quite well, but reminded the meeting that in requesting the Scientific Committee to develop a management scheme for aboriginal whaling, the Commission had not confined it solely to RMP principles.

Mr Donovan responded by noting the support and the suggestions made. Where possible, the Scientific Committee will use the same performance statistics as were used in the trials used for the RMP, particularly with respect to risk. However, he noted that the differences in the objectives for an AWMP and the RMP meant that it was not possible to use an identical set of statistics. For the *Initial Exploration Trials* the same optimal level (72%) will be used as for the RMP. With respect to the question of priority work for the Scientific Committee, he noted that from its perspective, it had completed its work on the RMP and that this had been adopted by the Commission, although the Commission itself had not completed work on the RMS. The Scientific Committee had indicated last year that it was ready to commence work on the development of an AWMP. Finally, he noted that as part of the process, the Scientific Committee would be considering the current aboriginal whaling scheme and variants of the RMP. However, it was not limiting its considerations to these options.

10.2.2 Action arising

The Commission endorsed the Scientific Committee's plans for its continuing work on this issue, including a meeting of the Working Group immediately before the next annual

meeting of the Scientific Committee. It noted the reservations of the Russian Federation on the need for this group to meet and the concerns of that Government to minimise financial expenditure.

It also noted that an aspect of this work which the Scientific Committee found to be particularly important was regular flow of communication with Commissioners and representatives of native groups. It was agreed that the Scientific Committee's AWMP Working Group should correspond initially with Commissioners from countries with aboriginal fisheries on an informal basis and proceed from there for the following years to see how that works.

10.3 Review of aboriginal subsistence whaling catch limits

10.3.1 *Report of the Scientific Committee*

Dr Reilly drew the attention of the Aboriginal Subsistence Whaling Sub-committee to the Scientific Committee report which contained no major changes in management advice for the Bering-Chukchi-Beaufort Seas stock of bowhead whales, the North Pacific eastern stock of gray whales, and North Atlantic humpback whales.

10.3.1.1 **BERING-CHUKCHI-BEAUFORT SEAS STOCK OF BOWHEAD WHALES**

The Scientific Committee received a number of papers on important aspects of the assessment methods used for this stock, including discussion of the Borel paradox in the Bayesian synthesis, the Backwards and Forwards variants, and the maximum likelihood approach. There was also a first attempt to estimate the adult survival rate of bowhead whales from photographs of animals individually identified by scarring on their backs, giving a point estimate of 0.986 with a 95% confidence interval of 0.941 to 1.000. It was recommended that the photographs should be examined to further this work. The current best estimate of abundance for this stock is 8,200, with 95% confidence intervals of 7,200 to 9,400.

Some members of the Scientific Committee expressed serious concerns about the 1994 implementation of the Bayesian synthesis stock assessment method. However, it noted other assessment approaches contributed management given the 1994 meeting. The Scientific that there be investigation the however, it that there reason the management advice given

The Scientific Committee noted that the the requested take of five whales the Chukotski region depended upon stock structure. it assumed that all whales the Bering-Chukchi-Beaufort region consist of a single information stock structure this area is available, and it encouraged the collection of such data.

The Scientific Committee had previously reported that under a scenario of the removal of 75 animals annually from the Bering-Chukchi-Beaufort stock, it was estimated that the population would increase over the 1995 to 1998 period at a rate of 1.46% annually (5% bound of 0.31%). It was also noted that a new abundance estimate and the revised estimate of rate of increase are both higher than estimated before. The Scientific Committee recommended that a major re-assessment should be conducted in 1998.

In the plenary session the Chairman of the Scientific Committee clarified, in response to a question from Japan, that there is no evidence of migration of Greenland/bowhead whales from Spitsbergen to the Bering Sea or between there

and the Okhotsk Sea. The Russian Federation replied to a query from Norway on establishing the stock structure in the area that it would encourage and develop scientific research on any whales taken.

OTHER STOCKS OF BOWHEAD WHALES

A total of 40 bowheads were estimated from observations from the air and on the water, including two cow/calf pairs, in the Shantar archipelago of the western Okhotsk Sea. The Scientific Committee recommended that because this stock is one of the most endangered baleen whales in the world, research on this stock should continue and that means for establishing a monitoring programme should be investigated.

The Scientific Committee also remains very concerned about the status and small size of the other Arctic populations of bowhead whales. The Davis Strait and Hudson Bay stocks are conservatively estimated at 450 whales and the Spitsbergen stock may now number only in the tens of animals.

10.3.1.2 **NORTH PACIFIC EASTERN STOCK OF GRAY WHALES**

The Scientific Committee received a report on a study of gray whales wintering in Laguna San Ignacio. The number of single whales in the middle lagoon in 1996 was found to be at a similar level to that reported for 1978, and substantially lower than reported for 1982. Fewer cow/calf pairs were also counted in 1996 than in the early 1980s. There have been no similar studies in other breeding/calving lagoons, so it is not known if this pattern of decline has been repeated elsewhere.

Northbound calf counts past Pt Piedras Blancas, California during March to May in 1994-96 were discussed. The estimated proportion of calves in the population for two earlier northbound surveys in 1980 and 1981 was around 5%, very close to the rate observed in 1994 and the preliminary rate reported for 1996. However, the rate in 1995 (2.5%) was significantly lower.

A number of papers reported on various aspects of abundance estimation from the southbound migration, which is the standard methodology used for this stock. The preliminary estimate of abundance for 1995/96 is 22,571 whales (95% CI = 20,400 to 25,000).

Bayesian analyses of gray whale population dynamics and stock assessment methods were also reported.

The Scientific Committee agreed that there were no serious inconsistencies between assessments made by the two approaches covered in the papers considered. There was considered to be no need for changing earlier management advice. In particular it was agreed that a take of five extra whales would have no significant impact given previous management advice.

The rationale for retaining current management advice is that the advice given during the Comprehensive Assessment was formulated relative to a higher annual take of animals than has been seen in recent years. Since that assessment, additional information suggests that it is implausible that a further detailed assessment at this stage would lead to the conclusion that a take of 145 whales per year would be too high. Japan received confirmation that the earlier advice referred to a period when the annual catch limit was 179 whales, so that a present catch of 140 or 145 would fall within this number.

The Scientific Committee recommended and the Commission agreed that a detailed assessment of the current status of California gray whales, and of the management

advice, should be undertaken by the Scientific Committee in 1997. It encouraged continued research in the breeding lagoons.

OKHOTSK SEA STOCK

Summarised observations on Okhotsk-Korean gray whales on their feeding grounds northeast of Sakhalin Island were reported to the Scientific Committee. In a new study, 3X individual whales were photographed during 1994 and 1995 but no population estimate was attempted. There are major oil and gas reserves in the study area, and a large multinational project to exploit these reserves is about to start. A management plan and long-term monitoring programme are therefore needed. It was noted that habitat degradation is occurring along the migration corridor of this population, and this stock is identified as one that may be particularly vulnerable to the effects of climate change primarily due to its low abundance. However, the oil and gas development is considered to be the most immediate and pressing concern.

The Scientific Committee recommended that because this is one of the most endangered baleen whales stocks in the world, research on this stock should continue, and that means for establishing a monitoring programme should be investigated. It further recommended that the Commission arrange to bring scientists together from countries with an interest in or within the range of these whales, to identify the research and measures required to maximise the chances of this stock recovering.

Both these recommendations were accepted by the Commission.

10.3.1.3 NORTH ATLANTIC HUMPBACK WHALES

The Scientific Committee noted that no additional information was available for this stock and agreed to repeat its advice for previous years that a catch of three whales would be unlikely to harm this stock. If whales are caught, every effort should be made to collect as much information as possible; in particular, photographs of the ventral surface of the flukes and tissue samples for genetic studies. It also noted that a comprehensive assessment of northwest Atlantic humpback whales would provide information on this stock.

10.3.2 Request for a catch of five bowhead (Greenland) whales by the Russian Federation

The Russian Federation presented its request to the Aboriginal Subsistence Whaling Sub-committee for an annual catch of five bowhead (Greenland) whales to meet the needs of the indigenous people of the Chukotski Autonomous region. The USA supported the Russian Federation's request as fully justified under IWC cultural and subsistence needs criteria for aboriginal whaling. Denmark also supported the request, not least due to the obvious subsistence needs.

In response to a query from the UK about the methods which would be used to take the whales if the request were approved, the Russian Federation said that these would be the same as those already used by the Chukotka people to take gray whales. A document previously presented to the Scientific Committee had given rise to a number of misunderstandings, as in addition to whaling data, it included raw data from vessel manifests required by the port authorities e.g. duration of voyage and ammunition on board. The use of anti-tank weapons and Kalashnikovs by civilian personnel was prohibited under national legislation.

Australia sought clarification about the needs of the Chukotka people, given the under-utilisation of the existing quota of gray whales. The Netherlands urged caution, given the endangered state of the bowhead stocks, and also asked if the Chukotski quota could be taken from the bowhead catch limits for aboriginal subsistence whaling already authorised under Schedule paragraph 13(b)(1). The Russian Federation responded that economic changes experienced throughout the Russian Federation had impacted on the region and on its food security, temporarily disrupting whaling operations which were now carried out by the whaling villages themselves. The new quota would supplement gray whale meat and was also required for ceremonial and cultural purposes. The current paragraph 13(b)(1) catch limits reflected the needs of other populations in other countries; it was not appropriate for the IWC to meet Chukotka need in ways detrimental to others. In response to questions from Switzerland and Austria, the Russian Federation confirmed that bowhead meat would not be used in fox farms and was solely for human consumption. The requested quota would not fully make up the deficit in gray whale meat, but it would improve food security.

The Chairman of the Aboriginal Subsistence Whaling Sub-committee summarised the discussion and noted that the request involved a Schedule amendment requiring a vote, and that the matter would be referred to Plenary accordingly.

In the Commission the Russian Federation reiterated the corrections to its documents which made reference to previous requests for catches of bowheads and the methods which would be used to take the whales. It re-presented the arguments to support its request for an additional catch of five bowhead whales, and Mr V. Etylin, the Vice-President of the Association of Indigenous Peoples of the North Siberian Forest of the Russian Federation and the representative of the native populations of Chukotka explained the nutritional value of whale meat and the importance of whaling to the native culture. Whaling in the area has existed for at least 2000 years but bowhead whaling was stopped in 1960 against the will of the people. The introduction of a market economy in the Russian Federation has resulted in the communities having to become self-reliant, but there are food shortages now due to a decline in the availability of reindeer meat which can only be filled effectively with whale meat. Regaining whale hunting skills will also restore old traditions and customs to preserve this unique culture.

In response to questions from Sweden, Switzerland and Austria, and a comment from Japan, the Russian Federation reconfirmed that the catching would be by small boats carrying out daily trips which already have a very high degree of efficiency in catching gray whales; the meat from the bowheads would be used for human consumption exclusively, with no commercial use of these whale products and none used for fox farms as is the blubber and some other components of gray whales.

There followed an extended presentation of views by delegations.

The Netherlands expressed its concern over this proposal, noting that the bowhead is an endangered species, and there is no information on the Bering-Chukchi-Beaufort Sea stock structure; it had doubts if an additional quota of bowhead whales was really needed given the under-utilised quota of gray whales, and it was unclear what number of whales might be struck and lost. Australia had similar concerns, as well as the commercial aspects of the existing operations it questioned the extent of the real need of the Chukotka people.

for an additional quota. Mexico agreed with both these delegations, pointing to the under-utilised quota and the increasing requests for aboriginal subsistence whaling, and New Zealand also associated itself with these comments. Monaco expressed similar reservations over the status of the stock and advocated the precautionary principle until a full scientific assessment had been carried out. Chile was also not sure of the need for an increased quota and thought it would be a good idea to put the request in the future. The UK was grateful for the reassurances received on the killing methods used in the aboriginal hunt but urged that everything possible is done to improve the humaneness and reduce the struck and lost rates.

St Vincent and The Grenadines registered its support for the Russian request. Norway took account of the need identified as the strongest driving force in the request; the sustainability of the stock and the willingness for the authorities to cooperate in taking samples to determine stock questions; and the possibilities for development with others of the killing methods. It therefore thought the request was legitimate and supported it. Denmark repeated its support, not least because of the obvious subsistence needs, as did the USA, pointing out that the existing quota is based on the documented needs of the Alaskan Eskimos, and any other native take must first demonstrate need from that stock. Japan indicated that as the USA was not prepared to share its quota with the Russian Federation then it supported the proposal and suggested the USA transferred its knowledge on humane killing to the aboriginal people concerned. The Republic of Korea and the People's Republic of China also supported the request.

France still saw some problems with the information available, particularly on the status of bowhead whales in the Arctic region. It thought that there is a link between this request and that for gray whales, and suggested postponing the matter to next year in order to consider both together. Germany associated itself with these remarks and had doubts about the real needs. Austria agreed with Monaco on the precautionary approach and shared the ideas of France and Germany that more information is needed, while Brazil also thought the decision should be postponed to next year.

At the end of these comments the Russian Federation indicated that it was in favour of a consensus decision, but it found difficulty with the requests for more information which did not specify what is needed. France identified the number of strikes and the situation of the stocks in the various Arctic seas as particular issues. The item was therefore left open for further discussion outside the meeting.

10.3.3 Request for a catch of five gray whales by the USA

The USA presented a request for a catch of five gray whales by the Makah Tribe. It outlined the history of Makah whaling. Although the exploitation of gray whales in the late 1800s had led to the suspension of whaling since 1926, it noted the continuance of aspects of the whaling tradition within the tribe since that time. It emphasised the strong community and tribal aspects of the whaling proposal. Makah representatives on the USA delegation outlined the importance of whaling to their culture and supplemented this with an audio-visual presentation. There was extensive reference to Makah history and culture and the significance of whaling to Makah identity. The role of whaling in the modern Makah community and its importance to future generations were also explained, as was its ceremonial significance. The problems for indigenous people arising from nineteenth century policies were emphasised, as were

the attempts by the USA and other countries to foster cultural revitalisation. The USA indicated that it wished whaling to be conducted under IWC auspices. An agreement between the government of the USA, and the Makah would prohibit commercial whaling. It was stated that no conservation issues arose. The proposal was characterised as falling within the requirements for an aboriginal subsistence quota.

In addition to the USA, 15 delegations participated in the discussion which followed. Denmark commended and supported the presentation. France acknowledged the importance of whaling to the Makah but asked how subsistence requirements could arise after 70 years of non-whaling, and how a cultural revival could take place if modern whaling technologies were to be used. The Netherlands expressed concern at the widening of the scope of whaling activities and questioned whether the request met the 1981 and 1988 Commission definitions of aboriginal whaling and aboriginal consumption. It asked how the Makah request could be based on a 'continuing tradition' after a 70 year lapse, where the Makah tradition appeared to be one of commercial, rather than subsistence whaling. The Netherlands asked whether the USA was seeking a change to paragraph 13(b)(2) of the Schedule. In respect of the 70 year intermission, Makah representatives responded that many peoples store traditions, including mourning traditions and name usage. Makah examples included storage of names, dance and whaling traditions. On the issue of shared quotas, the USA indicated that the current provisions of paragraph 13(b)(2) had been intended to meet Russian needs; the USA's request was separate.

The Republic of Korea and the Russian Federation indicated support for the request. Japan commended the USA's presentation and expressed understanding of the welfare of the Makah, which was very much a seaborne community. It questioned how monetary transactions could be excluded, bearing in mind the Makah's location close to a large city (Seattle). Japan also asked whether the USA's IWC share would increase should the request be accepted. The USA emphasised the non-commercial nature of the proposal, exclusively for local consumption and cultural purposes. The Chairman of the Aboriginal Subsistence Whaling Sub-committee noted the question of IWC shares, but considered such matters outside the Sub-committee's competence.

Switzerland asked how many Makah there were, and what tonnage of whale meat *per capita* would be provided by five gray whales. The USA said there were 1,800 members of the tribe, of which 1,000 lived on the reservation; it would calculate tonnage per person. In response to questions from Austria, the USA explained that although now most Makah live on one consolidated site at Neah Bay, some Makah live on each of the traditional sites except Ozette, now a national park, and all five original villages live on in Makah tradition. The USA acknowledged that the dates given in the USA-Makah agreement would need amending to reflect the period for which an IWC quota was set. Japan asked whether USA domestic law prohibited the commercial sale of bone and whale products, as well as whale meat; and whether commercial aspects could be totally excluded in a modern global economy. The USA responded by referring to the IWC's definition of aboriginal subsistence whaling which permits trade in by products of subsistence whaling.

The People's Republic of China said that the USA request was justified from both a scientific and a resource perspective, explaining the Chinese view of resource use and management under the auspices of the IWC. However it

regretted that the request was not completely in accordance with the IWC definition of aboriginal subsistence, having regard to Makah history and tradition. The long period of no whaling suggested there was now no dependence on whaling. The key issue was continuity in practice. An oral whaling culture or tradition could not be recognised under the current IWC arrangements for aboriginal subsistence whaling, unless the IWC established a new, broader definition for it.

Norway expressed support for local coastal cultures. On the evidence set out in the Scientific Committee Report, a quota of five gray whales would not be harmful to the stock. It asked what hunting methods the Makah intended to use. The USA indicated that it would work with the Makah to integrate traditional methods with modern adaptations to achieve the most humane hunt possible, in accordance with IWC concerns.

St Vincent and The Grenadines and Grenada indicated support for the USA proposal. Japan referred to the USA opening statement which it considered conflicted with the proposal in respect of strikes; and asked whether this posed a conservation issue. The USA said that the number of strikes were intended to reduce as the efficiency of the hunt increased, and that even ten strikes would not create conservation problems. Oman asked why the Makah, who had survived without whaling for 70 years, could not continue to survive without whaling; and why the Makah ceased whaling in 1926. The Netherlands reiterated its earlier concerns about the definition of aboriginal subsistence whaling, specifically regarding need (was this real necessity or cultural heritage) and about the precise nature of the Makah whaling tradition. The USA said that the interrupted tradition was a subsistence tradition; commercial whaling was separate, and had died out in the 1880s. The continuing sense of the tradition was maintained in songs and other cultural practices.

St Lucia supported the request emphasising the importance of respect for indigenous peoples and the need for these peoples to define their cultural needs provided that they were not disadvantageous to man and that wider conservation objectives were met. Without questioning the cultural aspects of the application, Australia questioned whether IWC nutritional subsistence criteria had been met. It also sought clarification on the need for a separate quota; this appeared to conflict with Article V of the Convention. The Secretary explained that when Schedule paragraph 13(b)(4) was adopted in 1987, it was made clear that no precedent was intended. The language used was only to identify an area, not to allocate a quota to a particular population. The USA said that it believed that its proposal met IWC criteria; it thanked countries supporting its application, and offered to answer any further questions individually or in other fora.

The Chairman of the Aboriginal Subsistence Whaling Sub-committee summarised the discussion and noted that as the USA's request involved a Schedule amendment, it would be referred to the Plenary for a decision.

In the Commission the USA spoke of the 1,500-year long tradition of subsistence whaling by the Makah Indian Tribe and its wish to continue this as part of the tribe's cultural renaissance and identity, aspects emphasised by Ms M. Parker, an official of the Makah Tribal Council. The USA firmly believes all whaling should be regulated by the IWC and the Makah proposal fits fully within the established category of aboriginal subsistence whaling and will not be a commercial hunt. An additional take of five whales with a maximum of ten strikes will not prevent the stock from continuing to grow.

Denmark, St Vincent and The Grenadines, Norway, Russian Federation, Grenada, Japan, Republic of Korea, Monaco and St Lucia all expressed their support for the proposal. France also fully supported the request and took the opportunity to send a message to try and improve the protection of harbour porpoises badly influenced in the salmon set net fishery. Sweden recognised that there is no uncertainty about the stock and its sustainability and appreciated the clear indication to achieve the most humane hunt possible.

Australia, whilst sympathetic to re-establishing important cultural activities, saw no clearly demonstrated evidence of subsistence need, a position shared by Spain. Chile expressed its doubts concerning the continuity of traditional dependence on whaling with a 70 year gap, the nutritional subsistence need, and the killing methods. The People's Republic of China and New Zealand had similar concerns on continuity and need, a position shared by Mexico which also noted that there was no unanimity within the tribe itself on the issue. The USA pointed out that a vote in the tribe had showed overwhelming support for the whale hunt. Oman expressed doubts on the humane killing of the whales. The Netherlands was not convinced that it was necessary to grant this quota to accommodate the nutritional or cultural requirements of the native people.

Austria looked for a clear base and criteria before taking a decision, and Ireland proposed deferring a decision until next year when issues such as breaks in tradition and other matters can be looked at.

Following these interventions, the item was adjourned for further informal discussions.

10.3.4 Request by St Vincent and The Grenadines for a catch of two humpback whales each season for the seasons 1996/7 to 1998/9

St Vincent and The Grenadines reported that no whales had been taken in the 1995/96 season, although one had been struck and lost. No whales had been taken for the last three years. The old harpooner continues to go out, and this year he was joined by a second boat, with a younger aspiring harpooner who has not struck a whale before, and it is hard to say if he will really succeed in becoming his own harpooner who will carry on the tradition. The delegation requested that the current quota, reflecting the continuing cultural needs of the Bequians of St Vincent and The Grenadines, be renewed for the next three years. It noted that the Scientific Committee had advised that a catch of three whales was unlikely to harm the stock.

The USA, Norway, Grenada, Japan, the Russian Federation, St Lucia, Denmark and Korea supported St Vincent and The Grenadines' request. New Zealand, supported by Mexico and Oman, asked St. Vincent and The Grenadines if it could provide a revised needs statement.

St Vincent and The Grenadines responded with a reference to the difficulty in collecting scientific information in a small island state. It referred to earlier papers tabled with the IWC on needs, and also to a recent publication 'Blows, Mon, Blows!'

The Chairman summarised the discussion, concluding that the Aboriginal Subsistence Whaling Sub-committee would invite the Plenary to consider a Schedule amendment to paragraph 13(b)(4) to cover the period 1996/7-1998/9; and in response to a query from the Netherlands, confirmed that the footnote to the current paragraph, requiring an annual review of the quota, would be retained.

The main points of its earlier presentation to the Aboriginal Subsistence Whaling Sub-committee were

repeated by St Vincent and The Grenadines to the Plenary session, adding that, as in times past, the marketing of whale products provides hard cash that is in short supply, and the exchange of money 'does not provide more than a subsistence basis for the fishery.

Australia, while not objecting to the proposed Schedule amendment, commented on the somewhat changed situation with a new young whaler entering the operation. It had believed this aboriginal subsistence operation was being phased out slowly with the old whaler. It suggested that the Commission should examine the nature of this operation a little more closely, particularly the methods used for killing whales, and given that whales have been struck and lost, the possibility of specifying a strike limit in addition to the catch limit. The Netherlands, New Zealand and Mexico shared these views, together with France which had doubts on the aboriginal nature and need for the catch, and Chile.

Japan, Grenada, USA, Denmark, the Russian Federation, Norway and St Lucia reiterated their support for continuation of the tradition and culture, joined by Antigua and Barbuda.

10.3.5 Action arising

REQUEST FOR A CATCH OF FIVE BOWHEAD (GREENLAND) WHALES BY THE RUSSIAN FEDERATION

In order to gauge the level of support for the request by the Russian Federation the Chairman asked delegations for expressions of views. Grenada, Japan, Republic of Korea, Norway, St Vincent and The Grenadines, Solomon Islands, USA, People's Republic of China, Denmark and Finland supported the proposal. France, Germany, Ireland, St Lucia, South Africa, Sweden, UK, Antigua and Barbuda and Chile indicated that they could join a consensus. Mexico, Monaco, New Zealand, Spain and Australia had strong reservations. Netherlands, Oman, Switzerland, Austria and Brazil also had reservations. Oman, Spain and Brazil then said they could join a consensus, but Australia and Mexico could not.

The Russian Federation expressed its thanks to those governments ready to join a consensus, but regarded the two in opposition as unfriendly because their attitude would entail economic damage to the Russian Federation and harm to the tribes. It believed decisions on aboriginal subsistence whaling should be taken by consensus, not vote, as for commercial whaling. It would report back to its government and no vote was now needed and there was no request for the item to be considered at the next Annual Meeting.

Mexico and Australia stated that their positions were based on the merits of the case and should not be considered a hostile or political act against the Russian Federation. The Netherlands supported this interpretation.

REQUEST FOR A CATCH OF FIVE GRAY WHALES BY THE USA

The USA made a statement appreciating the sympathy and support from some delegations, but noting the reservations expressed by others, and announced that after consultations with Makah representatives it was withdrawing its proposal and asked the Commission to defer consideration until next year when the gray whale quota expires and the needs of the Chukchi people will also be determined. France thanked the USA for this wise decision and the standard of documentation it had provided. Mexico expressed its thanks for the decision and clarified the reasons for its own difficulties with the request, and Japan encouraged the Makah to continue with their proposal next year.

REQUEST BY ST VINCENT AND THE GRENADINES FOR A CATCH OF TWO HUMPBACK WHALES EACH SEASON FOR THE SEASONS 1996/7 to 1998/9

Whilst there were some reservations expressed, there was a consensus to amend the Schedule so as to extend the catch of two humpback whales a year, with provision for an annual review, for the years 1996/97 to 1998/99.

11. COMPREHENSIVE ASSESSMENT OF WHALE STOCKS

11.1 Revised Management Procedure

11.1.1 Report Of the Scientific Committee

ESTIMATION OF 'PROCESS ERROR'

The Scientific Committee has previously used the term 'process error' to refer to additional variation in a time series of estimates, over and above that estimated from individual surveys. It concluded that to obtain the best estimate of additional variance from the full series of IWC/IDCR surveys, abundance estimates needed to be calculated at longitudinal resolutions which do not always coincide with half-Areas. It recommended that, prior to the 1997 meeting, abundance estimates be generated from both passing and IO survey mode at three longitudinal resolutions (10°, 60° and either 20° or 30°) and that additional variance be estimated at each resolution.

SURVEY DATABASE AND SOFTWARE

DEVELOPMENT OF THE IWC DATABASE AND ESTIMATION SOFTWARE SYSTEM (DESS)

Development of the IWC-DESS is being carried out under contract to the IWC. It standardises IWC line transect survey data storage and provides powerful data manipulation and estimation facilities for abundance estimation by linking the database to other programs. Development and documentation of the IWC-DESS has been completed, but there remain some problems relating to the validation of data held in the system. IWC-DESS was transferred to the Secretariat at this meeting and access to the system by accredited members of the Committee will be possible as soon as the problems are resolved.

Matters requiring work for completion of the current system were summarised and it was agreed that resolution of these should be done through discussion between the developers and the Secretariat. This had minor financial implications. The Scientific Committee agreed it was important that the Icelandic NASS-89 data be fully verified, and recommended that the Secretariat and the developers liaise with the relevant Icelandic scientist(s) to accomplish these tasks. This has financial implications.

The Scientific Committee noted that the developers of the database system were currently entering other data. However, it noted that incorporating data on gray and bowhead whale stocks subject to aboriginal subsistence whaling, for which very different methodologies were used to estimate abundance, would be a major task. Incorporating historical data, such as 'Discovery' data, would also be a major task. The Scientific Committee therefore recommended that, at this time, data entered into the database system should be limited to those collected before and after IWC/IDCR cruises in the Southern Hemisphere (these data have been coded but not verified) and those from the Japanese and IDCR dedicated surveys conducted in the Southern Hemisphere between 1978/79 and 1982/83 (these data have not been coded). Accomplishing this task will have significant financial implications. The Scientific Committee

the report, and because of this worldwide, regional and local sustainable use of whales, urged that the Item be kept on the Agenda.

Antigua and Barbuda thought that whalewatching should not be given priority over the traditional use of whales for food, noting the economic opportunities are not converted to the traditional users, Japan thought the recommendations needed to be carefully reviewed, coming from particular interest groups. St Lucia took the view that whalewatching was not an important Item for the Commission.

The Chairman concluded that the Item should continue on the Agenda, the Commission took note of the information provided and member nations were asked to submit more in future.

7. ADOPTION OF THE REPORT OF THE TECHNICAL COMMITTEE

The Technical Committee met with Mr M. Canny (Ireland) in the Chair to discuss Items 5 and 6 as described above. Its report of these matters was formally adopted by the Commission.

8. HUMANE KILLING

8.1 Report of the Humane Killing Working Group

The Working Group met with Dr K. Chu (USA) in the Chair. Documents were presented by the relevant delegations and there was a general debate to conclude.

Use of the electric lance as a secondary killing method

New Zealand introduced a document which expanded upon previous work. The document stated that the humane aspects of electrical lancing have aroused widespread concern and debate, and that the previous research work of Blackmore, Madie and Barnes on dry whale carcasses had indicated that the current densities in the heart and brain of electrically lanced larger whales are unlikely to reliably render the animal unconscious or stop its heart. The new study presented concerned the flow of electric current through cetacean carcasses partially or totally immersed in seawater. Reasons for the failure of electric current to flow include non-optimal current injection sites, insufficient current injected and presence of sea water. Since the electric lance does not kill or render the animal unconscious in less than five seconds, the document concluded that it cannot be considered a humane killing method.

New Zealand stressed that the key issue is not some abstract anti-remote statistical argument about the time an animal takes to die at the end of such a lance; it believed that it was an approach that no veterinary scientist would apply in a practical abattoir environment.

Japan, whilst appreciating the work done by Dr Blackmore, commented that the research it had carried out in 1994-1996 indicated that 50% of the whales died within 30 seconds. Additionally, the IWC criteria for time to death may not be the best, and in particular that the time to death could be overestimated.

Japan was already aware of the fact that seawater can reduce the effect of the electric lance. Therefore it tried to make sure that the electrodes were not in seawater. If the whale is immersed in the seawater, the electric lance is usually applied so that the current goes through the brain, not the heart, in order to minimise the attenuating effects on the effectiveness owing to the presence of seawater. Experiments show that the electric current is not reduced

because the skin is wet. Dr Barnes was encouraged to expand his studies in order to give advice on the most efficient placement of the electric lance.

When introducing its document, the UK stressed its commitment to animal welfare. It was struck by the development of whale killing methods, and especially the use of the penthrate grenade harpoon and high power rifles. It stated that it is universally accepted that for domestic species, the use of electric killing methods that do not achieve an effective stun is inhumane. For this reason, the European Council Directive on the welfare of animals at slaughter states that for electronarcosis, electrodes must be placed so that they span the brain, enabling the current to pass through it. In electrocution with cardiac arrest, the electrodes must be placed so that they span the brain and the heart and lead to immediate loss of consciousness and cardiac arrest. The use of the electric lance poses special problems when used under conditions likely to be met at sea in the areas of activity of Japan's whaling fleet. Two questions had to be asked.

(1) Is the electric lance effective? If not, the doubt should benefit the whale.

(2) Is use of the electric lance humane?

In the UK's view, 20-40 seconds to death is far too long in an animal which may not be insensible. The UK further said that a stun in a slaughterhouse should occur immediately; 30 seconds is inhumane and caused concern. It stressed the immense potential of the rifle as a secondary killing method.

Japan stated that it is unfortunate that the electric lance is described as inhumane. It stressed that the correct use of the electric lance had shortened time to death, and it could therefore not agree that the electric lance is inhumane. Japan was, however, open to discussion of better secondary killing methods.

Norway introduced a document by Prof. Walloe, submitted as a response to statements in the New Zealand and UK papers which yet again raised questions that were discussed and answered at the Workshop in Dublin in 1995 or in the Technical Committee last year. It addressed two main questions.

(1) Does the use of the electric lance as used in the Japanese hunt cause a rapid death?

(2) Does the use of the electric lance lead to immediate loss of consciousness?

The answer to the first is yes, the median time being 40 seconds. To the second question there is no clear answer as yet.

Norway did not always find it completely clear which of these two questions were being discussed by the UK and New Zealand. The Norwegian study of the Japanese use of the electric lance was based on data from 449 whales, and the data have not been disputed. Death is caused by cardiac fibrillation which leads to a rapid death. When whales are injured, but not subject to a secondary killing method, the death occurs in the same way as for other mammals, humans included, as can be seen as the result of war wounds and serious traffic accidents. The hypothetical considerations presented in the New Zealand and UK documents do not in any way invalidate the results presented last year. However, Norway is not a strong advocate of the electric lance; it prefers the use of the rifle.

The UK did not substantially disagree with Norway on a number of points made. At the Dublin workshop, Prof. Walloe tended to agree with Dr Blackmore that the electric

lance as used probably did not cause instantaneous insensibility. Prof. Walløe confirmed that. However, based upon new evidence that was not available to him last year, he was now not so sure as he had been then.

The Netherlands pointed to some inconsistencies in the data presented. Norway and Japan explained that the reason for this was that the studies were based on data from different years. Prof. Walløe's paper was based on data from all 891 whales taken in the Japanese catches from March 1994 to March 1996. The Japanese paper by Dr Ishikawa was based on data from 1996, a year with younger and less experienced crews than the preceding years, which also could explain the differences.

Before introducing its document, Japan made six points.

- (1) The issue is outside the competence of the IWC under the terms of the Convention.
- (2) It had participated in and submitted data to the IWC strictly on a voluntary and cooperative basis and this will remain unchanged. Therefore, Japan does not accept the situation in which it would be obliged to submit data as a requirement. Japan's research is in accordance with Article VIII of the Convention which guarantees a signatory nation's sovereign right to conduct research irrespective of other provisions of the Convention including the Schedule.
- (3) In light of diverse value judgements on humanness in the world which are rooted in different traditions and cultures, the objective criterion and yardstick must be and has been applied, that is, reduction of the time to death. The development of the penthrate grenade harpoon by Japan for use on minke whales and subsequent improvements reduced the time to death considerably.
- (4) If and when discussing the issue, it seems fair and scientifically justified to investigate the situation of not only Japanese activities but also of other types of whaling, including aboriginal and subsistence whaling.
- (5) With regard to the electric lance as a secondary killing method, the results of the extensive research submitted showed that this is an effective method. No mention of the electric lance was made in the Revised Action Plan which was agreed by consensus in 1995.
- (6) Any attempt to ban the electric lance is unjustified and would frustrate future voluntary cooperation and collaboration on its part.

Considering the Revised Action Plan of Whale Killing Methods which was adopted at the Dublin Workshop, Japan started a discussion on the introduction of the rifle as an additional secondary killing method for minke whaling in order to shorten time to death. An experiment was conducted in its 1996 JARPN (North Pacific) and 1996/97 JARPA (Antarctic) research programmes. The results of the experiments indicate that the time to death was clearly shorter using the rifle as the secondary killing method, mainly because it is easier to prepare for shooting. On the other hand, the time from the application of the secondary killing method to death showed little difference between the rifle and the electric lance. It is recommended that the rifle should be used as the favoured secondary killing method in JARPA and JARPN to shorten time to death as long as it is practicable and feasible. However, the rifle would never totally replace the electric lance.

In response to questions raised by New Zealand, Japan replied that: (1) rifle shots were aimed at the brain or the upper spinal cord; (2) that it was not always possible to kill the whale with only one shot, and that 2-3 shots would be the

average; (3) that the intervals between shots would be 10-30 seconds; and (4) that the number of rifles on board could not be augmented because of the lack of marksmen to use them.

In response to questions from the UK, Japan indicated that there was not much choice of ammunition in the market, and that it used a bullet of 250 grains, the largest available in Japan. Bullets that did not penetrate would remain in the muscle. Necropsy studies concluded that hitting the upper (cervical) spinal cord had equivalent results to hitting the brain.

Norway pointed to the fact that large calibre ammunition would not alone ensure a better effect because the gun would be heavier to handle and therefore more difficult to aim rapidly at a small target. When ammunition with different calibres is found sufficient for a rapid kill, the choice of calibre will often be a compromise between calibre size and the weight of the gun. Consequently, there is no single answer to this question.

Norway reported that its use of the rifle had started in the late 1970s. From 1982, a calibre of minimum 9mm was permitted. Studies of different types of ammunition are under way, but no precise data are yet available. A study from the present summer, which has not yet been concluded, and where three different calibres (9.3mm, 0.375 and 0.458) and projectiles with full metal jacket were used, showed that all three calibres penetrated the skull and went through the brain. It is, however, unrealistic to expect that a single shot will always be sufficient. In the hunting of big game, and in whale hunting, some shots may fail to hit the target accurately enough to kill the animals instantaneously, and the animals have to be reshot. Norway has obtained good results by using rifles, but the training programme for whalers will continue as the success of shooting is dependant on the skill of the shooter.

Sweden wanted to find the most efficient killing methods and in that respect had asked for comparative studies including data for other hunting activities. It welcomed the Japanese report as being very relevant to the questions raised. Finally, it suggested that Japan discuss the use of the explosive grenade as a secondary killing method.

Norway referred to the Swedish request for information on the hunting of other animals, noting that it had submitted data on game hunting to the Dublin Workshop. Sweden and the UK have similar data which they repeatedly have been asked to submit.

South Africa was keen to see the most humane killing methods used and associated itself with the comments made by Sweden. It asked whether there were any legal obstacles for using larger ammunition.

Japan replied that it had not considered the use of the explosive grenade as a secondary killing method as it is not regarded as a viable option. It would destroy or spin out the first harpoon embedded in the whale body and damage the whale badly. Japan also noted that there were legal problems for increasing the size of the bullets used.

In the general discussion that followed, the USA pointed to the new research presented by New Zealand, and it suspected that the effect of the electric lance was reduced even more in a real-life situation. It had been struck by the UK presentation that stressed that the whale should have the benefit of the doubt, which it thought was the essence of the precautionary approach. This view was shared by several delegations. The USA welcomed the Japanese paper, and was impressed by the results presented. It encouraged further development and urged that Japan consider adoption of the rifle as the secondary killing method.

Australia stated that it did not share the Japanese view regarding the killing of whales. In its view there is no need to kill whales for research purposes. When looking into the techniques, science demanded the highest standards. It said that killing methods could not be partially humane; it was like being pregnant, or not. It stated that no killing method was humane, but efficiency could be improved. Norway commented on this particular statement, and said that even in abattoirs there were failures.

Brazil had concerns as to whether any methods could be considered humane. For the time being this was more a philosophical than a scientific question.

Antigua and Barbuda stressed its concern over such discussions because the issue of hunting methods for whales could have serious implications for global fishing activities. Basically, fishing was also a hunting activity and could eventually be regarded as inhumane. Consequently, this debate and subsequent decisions of the IWC on this issue could present a threat to fisheries, especially for developing countries. It stated that one would have to differentiate between the hunting of animals in the wild and the killing of domestic animals in order to arrive at a more balanced and realistic perspective on this issue.

St Lucia pointed to the fact that Japan was hunting whales under Special Permits. The need to kill for scientific reasons was demonstrated. To be consistent one should not only talk of inhumaneness in connection with whaling. One should globalise the issue and make comparisons of inhumaneness in the way other animals and human beings are killed. Attention was also drawn to cultural differences, as in some countries it was not difficult to obtain the most destructive weapons, but in the case of Japan the use of rifles was not permitted as a matter of course. St Lucia recommended that the issue of humane killing should therefore be deleted from the IWC Agenda. This was supported by Antigua and Barbuda and Japan. Antigua and Barbuda suggested that a more appropriate topic could be 'gear and methods for whaling activities'. This would also include methods employed for whalewatching. The Chairman informed the Working Group that the topic had been on the IWC Agenda for decades, and the UK stated that the topic would not disappear if deleted from the Agenda.

Spain welcomed the exchange of views on technical questions and the Japanese contribution. It did not, however, share the Japanese view that rifles would never totally replace the electric lance. It recommended that further research be undertaken on how further to improve the efficiency of the rifle in terms of time to death and of rendering the animal immediately unconscious.

Monaco stated that the term 'humane killing' was unfortunate because its subjective elements evoked different echoes in various cultures. Some scientific controversy remained over the question of the efficacy of the electric lance in rendering whales rapidly unconscious. On the other hand, a consensus on the superiority of the rifle as a secondary killing method was emerging. It therefore encouraged Japan to explore means to use rifles as the only secondary killing method.

Switzerland's legislation demanded killing methods that made the killing as quick and painless as possible, and that these principles were valid not only for slaughterhouses but also for the hunting situation. It hoped that in due time Japan would replace the use of the electric lance by more effective means.

The UK stressed that in its view, the key question was whether one applied the same principles to whales as to other mammals, domestic or wild. However, while it might not be

possible to reach agreement on all scientific issues involved, this need not prevent practical steps forward being taken.

Japan thought it was logical to compare killing methods for whales with the hunting of other wild animals, not with killing in slaughterhouses. It accepted that rifles should be used more in the Japanese catch, and said that the rifle would be used as a main secondary killing method except in cases where difficulties arose in the use of the rifle or the availability/ability of a gunner. The 'electric lance' would, however, never be totally abolished, and it could not accept as the conclusion of the debate that the Working Group recommended the prohibition of the electric lance. The most reasonable conclusion was that the work must continue. Japan believed that the positions of governments were not that far apart, and indicated that it was prepared to work further to find common ground.

New Zealand also stated that it found much common ground in the discussion: rifles were the most effective secondary killing technique, the electric lance was regarded as less effective and the rifle could be an alternative. New Zealand was also prepared to talk to reach a common stance.

Japan explained that it could not accept a consensus based on the conclusions suggested by New Zealand. It was willing to promote the use of the rifle, but would do so without judging that the rifle was more effective. Nevertheless, it welcomed the chance to work further to find a consensus.

The Chairman then summarised the discussion as follows:

- (1) that there was no consensus in the Working Group that the rifle appeared to be more efficient than the electric lance as a secondary killing technique;
- (2) that a number of delegations felt that the evidence regarding the superiority of the rifle was clear and compelling, while some delegations felt that further research was needed to clarify the matter;
- (3) that the Working Group noted that Japan had said it would use the rifle as the main secondary killing technique, except if difficulties arise with a rifle or a hunter, even though Japan still felt that the electric lance was effective;
- (4) that some delegations felt strongly that the use of the electric lance was inhumane and had urged Japan to use only the rifle as a secondary killing technique, whereas others had felt that more research or training would be prudent before abandoning the lance completely.

A contact group was established to develop a way forward on how to resolve amicably in the Commission the question of the electric lance. Members of the group would be representatives from New Zealand, UK, South Africa and Japan.

The Chairman noted that some delegations had recommended deleting humane killing from the IWC Agenda or, at the very least, changing the name of the Working Group.

Other business

Four items, given below, were discussed.

(i) MAKAH WHALING

The USA presented a document describing how traditional Makah whaling equipment and techniques have been studied to develop modifications necessary to maximise safety, efficacy and humaneness without sacrificing the overall structure and cultural value of the hunt. The major modifications to the hunt are the adoption of the toggle point

harpoon to attach floats and the use of the .50BMG rifle for humane killing. This rifle has demonstrated an overwhelming ability to damage the central nervous system sufficiently to kill the animal instantaneously.

Responding to questions from Sweden, the USA said that there were problems adapting the Eskimo harpoon for use with the smaller gray whale, and that the Makah did not want to use it for cultural reasons. The Makah wanted to use techniques that are as close to their traditional methods as possible.

The UK remarked that the proposed rifle was very heavy for use in a canoe, to which the USA replied that the Makah had fired it from the shoulder, and were able to use it even in a canoe.

Switzerland expressed concern about the use of rifles as a primary killing method and strongly urged the Working Group to evaluate the rifle in this capacity, as the discussion so far in the group had focused on it as a secondary killing method.

Norway commended the USA for setting up a proper development programme. It felt, however, that it was a strange situation in the IWC that the most efficient method was excluded because it had a taste of commerciality attached to it (i.e. hunting gray whales from a boat of a sufficient size to have a harpoon gun mounted in the bow). It underlined that all killing methods had been developed for commercial use. If the grenade harpoon was not to be used, it felt that the method described was the best way ahead. The main concern is the shooting of whales with a gun from a canoe which gives a tow platform, as the whale will dive and try to avoid the boat when it has been hit. More than one shot will have to be used in some cases. It might be considered whether it would be better to shoot the whale from the chase boat that would be following the operation for safety reasons.

Japan appreciated the Makah research. It stressed that humaneness is not measured only by time to death. One also has to take into account the welfare of the hunters.

The USA responded to the comments by saying that the rifles are designed for hunting and they were specially modified for this purpose. The canoe platform is a fundamental feature of the Makah hunt. The chase boat will pursue the whale if the whale is not immobilised by the first shot. The chase boat also has a rifle on board. There will be no prolonged chase.

(2) ALASKA BOWHEAD WHALING

The USA presented a document on the efficiency in the Alaskan bowhead hunt and stated that the use of the new penthrate bomb was very successful. Many technical issues were now resolved. The security for the hunters was taken care of, and there was less damage done to the meat. The USA also reported that so far in 1997, 59 strikes had been used to land 44 bowheads, giving an efficiency of 75%. A detailed report on these matters would be presented to the meeting next year.

Dr E.O. Øen was credited for his help during the development of this weapon.

(3) NORWEGIAN HUNT

At the request of the UK, Norway provided information on its 1996 hunting season. This was preliminary information as Norway intended to report on these questions to the next Whale Killing Workshop where specialists would participate. It held this opinion because it did not feel it right

to discuss such information in a group of mainly bureaucrats and politicians. The UK was grateful for the information and asked if it could be provided on an annual basis.

(4) NEXT WORKSHOP

The question of whether and when to convene the next Workshop on Whale Killing Methods was referred to the contact group.

8.2 Proposed Schedule amendment

In the Commission, Japan reiterated its position on the issue of the electric lance as set out in the report of the Humane Killing Working Group. Although Japan maintained its view that the electric lance is still an effective secondary killing method, it stated that it intended to USC, from next season, rifles as the principle secondary killing method except in cases where difficulties arise in their use or in the availability/ability of gunners. It also stated that it would continue to submit information relevant to the issue to an appropriate forum of the Commission, to the extent practicable and strictly on a voluntary basis.

New Zealand and the UK welcomed this statement, noting the influence of South Africa, and hoped for the total removal of the electric lance. Because of the progress made on a cooperative basis they therefore no longer sought a Schedule amendment to ban the electric lance. Australia, Spain, Mexico, Chile, Netherlands, Switzerland and Monaco also commended Japan and all the parties involved, recognising that the rifle is superior to the lance.

8.3 Action arising

The UK reported that discussions in the contact group suggested that because of the short time before the next meeting in Oman, a Workshop should be held at the same time as the Scientific Committee before the 1999 Annual Meeting, and to retain the annual meetings of the Working Group.

France, supported by Mexico and Monaco, suggested changing the name of the Working Group to hunting methods. Antigua and Barbuda felt the name was a particular worry, preferring gear and methods for whaling activities. On South Africa's suggestion, it was agreed to leave this issue to the Working Group to decide.

A Resolution was proposed by Finland, Germany, Netherlands, Oman, South Africa, Spain, Sweden, Switzerland, UK and the USA on improving the humaneness of aboriginal subsistence whaling.

The UK pointed out that there was no implication that aboriginal subsistence whalers were not concerned over this issue, but it urged further progress and cooperation. The USA was pleased to cosponsor this Resolution and it was doing everything possible in this area. Japan believed it was outside the scope of the Convention but would not block a consensus. Antigua and Barbuda noted the use of the term humane killing and must therefore abstain. The Russian Federation stated it was also committed to further improvement.

The Resolution given in Appendix I was then adopted by consensus.

would have any advantages over the existing one. Netherlands supported this idea and also suggested examining future properties of the AWMP in comparison with the RMP, particularly investigating the differences between the two schemes.

The Chairman thanked the Scientific Committee, and in particular the Standing Working Group on the AWMP, for its work.

10.2.2 Action arising

In the Commission, the USA remarked that it followed the work of the Scientific Committee very closely. It found the present aboriginal subsistence whaling scheme effective, and suggested that the Commission should not move to a new scheme unless it proves to meet the Commission's objectives. The RMP had been compared with the old management scheme for commercial whaling, and it believed a similar comparison should be made with the AWMP.

The Netherlands spoke of the importance of consistency, and also called for a comparison of the RMP and the AWMP. The UK and Monaco supported the Netherlands, and the Chairman of the Scientific Committee pointed out that this had already been agreed.

10.3 Review of aboriginal subsistence whaling catch limits

10.3.1 Bering-Chukchi-Beaufort Seas stock of bowhead whales

The Russian Federation presented a request for an aboriginal subsistence quota of five bowhead whales from the Bering-Chukchi-Beaufort Seas stock. It outlined the long-standing harvesting of bowhead whales by the Chukotka community and the abundance of the species in local waters. The cultural, spiritual and nutritional needs of the Chukotka peoples and the importance and purpose of reviving their culture with respect to bowhead whaling were described, and the impact of economic changes since 1991 on the indigenous people of this region noted.

In response to questions raised by Brazil, the UK, Australia, Switzerland, South Africa and Denmark, the Russian Federation stated that the last harvests of bowheads by the Chukotka people occurred in 1971 and 1975 with 1-2 whales taken in each year. Bowhead whaling had ceased due to protection of the species, but gray whales had been continuously taken. It confirmed that animals to be taken belong to the same stock as those caught in Alaska. As the stock is now increasing, the initial reason for suspending the bowhead harvest no longer exists. The entire indigenous population (17,000 people) was involved in the catch, consumption of whale products and cultural aspects of whaling activities. In the past, equipment and appropriate technology had not been available but now the Alaskan Eskimo Whaling Commission had supplied the Chukotka people with many boats, engines, weapons and appropriate training. The improvements to killing methods and efficiency are evident by the recent takes of gray whales which had each required only one shot. The permit provided by the Russian Federation last year for two bowhead whales on the grounds of need of the people had not been taken. On the question of why a bowhead quota was requested without full utilisation of the existing gray whale quota, the Russian Federation noted that the Chukotka people preferred bowhead whale meat over gray whale meat; and bowheads were more accessible and easier to catch. The Chukotka people are working in collaboration with the Alaskan

Eskimo people on scientific aspects of the stock. Results of some of the joint studies may be available for the next meeting.

Denmark, Norway and Japan indicated support for the Russian request recognising that the need of the community had been well documented, with Norway noting the importance of obtaining advice from the Scientific Committee on the biological aspects of stock structure and abundance. Brazil expressed its concerns at the recent increase in the number of requests and the number of whales requested under aboriginal subsistence quotas. In answer to questions from Brazil and New Zealand, the Russian Federation stated that all bowhead whale meat would be used for human consumption by the indigenous population.

In response to Switzerland, the USA advised that discussions were underway regarding a joint Russian-USA proposal that would be presented as an amendment to the Russian bowhead request. This proposal would address the concerns expressed by some delegations regarding what might appear to be competing aboriginal subsistence quotas from the one bowhead stock. The existing quota of bowheads from the Bering-Chukchi-Beaufort Seas stock set on need established by the Alaskan Eskimos expires in 1998. The Russian request involves an increase in the total catch and the joint proposal would give the Commission the chance to deal with both native peoples requests at the same time and the desire of the Alaskan natives to accommodate the immediate needs of the Chukotka people. The USA noted that the needs of the Alaskan people had not changed. The proposal would be for five years with a quota of 07 strikes per year, thus keeping the number of strikes at the 1996 level with limited carry-over. To accommodate the need of the Chukotka people, the number of carry-over strikes would be increased from 10 to 15. The present Schedule language regarding a review of the provision in light of the advice of the Scientific Committee would be retained. This provides flexibility to both groups of native peoples.

The Chairman of the Scientific Committee commented that there was no reason to change the advice given previously on this stock (that, with the removal of 75 animals annually, the population would increase over 1995 to 1998 at a rate of 1.46%), and pointed out that there will be a major reassessment of bowhead whales in the Scientific Committee at the next Annual Meeting. In the past it had been assumed that this was one stock, however the Scientific Committee had recommended studies to clarify this issue.

Norway noted that the assessment of bowheads at the next Annual Meeting would be a major assessment and therefore quotas should not be set for more than one year. The Netherlands, Denmark, Russian Federation, Australia and St Vincent and The Grenadines expressed their support for the joint proposal process. The Solomon Islands and Monaco also supported the proposal.

Australia and Spain sought clarification on the number of strikes and carry-over. The Russian Federation expressed its view that an allocation of 67 strikes would lead to a more efficient harvest. The USA explained that the proposal had been developed in the context of strikes and carry-over rather than landed whales in order to provide flexibility. The Scientific Committee and the IWC consider all whales struck, whether landed or not, as mortalities. This was a more conservative approach than developing a proposal on the number of landed whales. The USA would still report all strikes and landings, and would report to the Humane Killing

Working Group on any relevant matters. The Netherlands thought that as hunting efficiency improves the strike rate should be decreased accordingly.

10.X1.1 REPORT OF THE SCIENTIFIC COMMITTEE

The Scientific Committee's comments were reported directly to the Aboriginal Subsistence Sub-committee as noted above.

10.3.1.2 ACTION ARISING

In the Commission, the USA and the Russian Federation presented their joint proposal in the form of a new text for Schedule paragraph 13(b)(1). They both emphasised the local needs and traditions involved, and the introduction of improved weapons technology to make the hunts more efficient.

In response to comments and concerns on various issues, expressed or reiterated by Norway, Denmark, Switzerland, Sweden, Spain, the Netherlands, Australia and Japan, the USA spoke of its recognition of the forthcoming stock assessment; the bilateral arrangements to ensure that quotas are not exceeded; its intention to submit information to the Scientific Committee particularly on stock structure; to submit infractions reports and annual reports on progress; and an updated needs statement which is indexed to the human population and so exacerbates the situation as the population grows. It stated that products such as oil and handicrafts are exempted under US trade laws.

Further interventions from Mexico, Monaco, Japan and Germany on the uncertainties of stock structure and assessment led the USA to stress that it will not only abide by the results of next year's assessment but also annual reviews.

After further consultations, some amendments to the language proposed were submitted, to clarify that 15 unused strikes from the 1995-97 block quota would be carried forward, and that the annual review would take particular account of the 1998 Comprehensive Assessment of the stock.

Following a comment from the People's Republic of China that it supported the proposal according to the cultural traditions of the people and the report of the Scientific Committee, the Schedule amendments shown in Appendix 11 were adopted by consensus.

10.3.2 North Pacific Eastern stock of gray whales

CHUKOTKA REQUEST

The Russian Federation noted that from 1969-92 gray whaling had been carried out by the Chukotka people. During the last years of the hunt they had an IWC quota of 169 gray whales. The full quota had not been taken due to lack of equipment, tools and appropriate technology and experience. The isolation of the region is a major contributing factor to the inability to utilise the quota and the need of the native people to be able to supply themselves with food from local sources, particularly marine mammals. Economic change in the Russian Federation had also compounded this effect. The cultural, religious and social importance of whaling to the Chukotka people was emphasised. They use skin boats and have recently benefited from a transfer of technology (equipment and training) from the Alaskan Eskimo Whaling Commission. Evidence of the

success of this transfer in improving the efficiency of the hunt was given by the example of three whales harvested this year, each taken with a single shot.

The issue of gray whale meat being supplied as food for fox farms had been of concern to a number of delegations in the past, particularly as this affected the classification of nutritional need under aboriginal subsistence whaling. The Russian Federation noted that in 1991 there had been 20,000 foxes farmed in the region. By 1996 this had been reduced to 2,000 and by the end of this year the number would be reduced to 1,000. Now only those parts of the gray whale inedible to man (blubber and entrails) were fed to farmed foxes. The traditional hunt takes place 2-20km from shore and smaller animals are taken than was usual in the days of Soviet fleet whaling in the same region. The stock size is estimated at 23,000 and believed to be close to original levels. The native people of the region have been making concerted attempts to become part of the international community and the request is for a quota of 140 gray whales.

The UK, Australia, Spain, Netherlands, Brazil, Austria and a number of other delegations expressed concern at the previous use of gray whale meat in fox farms and the need to improve killing methods and efficiency of the hunt.

The USA commented on the problems faced in this remote region of the Russian Federation and the considerable attempts they had made to address the concerns expressed here and in the previous meeting by many delegations. Of particular note was the transfer of technology from Alaskan Eskimos which had significantly increased the ability of the Chukotka people to hunt more effectively. Denmark recognised the need of the Chukotka people and associated itself with the USA statement.

The Russian Federation repeated that the killing methods were being rapidly improved due to technology transfer; fewer whales were taken than quota due to a lack of fuel and equipment. In response to a question from Switzerland, the Russian Federation advised that, for similar reasons, fewer walrus and seals had also been taken; the numbers of gray whales were increasing as submitted to the Scientific Committee; farming of foxes had been rapidly reduced and only inedible parts of whales were used as food on farms; the indigenous human population lacks meat and uses the whale meat for sustenance; the total aboriginal population in the region is 17,000 people and all are involved in whale meat consumption; meat requirements are 100 kilos per person per annum, this would add up to 340 gray whales if real need was being requested, but only 140 whales can realistically be harvested and so the request is made for this number even though it does not meet the full need of the community.

St Vincent and The Grenadines expressed support for the request by the Russian Federation.

MAKAH REQUEST

The USA renewed its request for a quota of up to five gray whales for the Makah tribe. The Makah Tribal Council have determined that there is a need to renew the cultural tradition of whaling in the community. The following points were made in support of the application:

- (1) there is no conservation problem with the stock;
- (2) the Makah have a 1,500 year tradition of whaling which has been of central importance to their culture;
- (3) a formal treaty with the USA Government, dating from 1855, had preserved the right of the Makah to take whales and other marine resources;

- (4) since the last IWC meeting the Makah had made considerable efforts to address the concerns expressed by some delegations (safe, humane and effective hunt; training in hunting techniques; subsistence use of whales; no waste of whale product).

The Makah will be coordinating their proposal with the Russian Federation and would present a Schedule amendment to Plenary.

Following a brief address in the Makah and English languages, a representative of the Makah Tribal Council spoke emphasising both the central focus and importance of whaling to Makah culture. A weapons expert gave a presentation showing the weapon, ammunition and techniques to be used in the Makah hunt. Modifications have been made to the weapon to improve killing efficiency (accuracy, penetration and lightening of the weapon for use in boats) and trials had been conducted on carcasses and targets at sea. The trials had resulted in certainty that the greater power of the weapon to the target, combined with increased accuracy, would result in only one shot being required to produce a quick and humane death of the whale.

New Zealand and the UK received assurances to a number of technical questions on the ability to accurately hit the brain stem, and on the use of jacketed ammunition.

The USA acknowledged that some dissent exists in the USA concerning the Makah proposal.

Many delegations welcomed the Makah presentation and the efforts they had made to address concerns expressed last year. They referred to previous debates on this issue concerning the lack of continuation and the inability of the Makah to show that the nutritional need met the criteria required under aboriginal subsistence. They were sympathetic to the efforts of the indigenous people to revitalise their cultural traditions but still felt that the strict aboriginal subsistence criteria had not been met.

Brazil voiced the concern that there appeared to be an increasing demand for new aboriginal subsistence quotas and that approving this request might stimulate many other groups' demands. Monaco stressed the importance of applying transparent principles on conservation criteria, humane killing methods and meeting the need criteria. It also offered the view that western cultural views cannot always be applied to other cultures, making the point that the Makah had discontinued whaling in response to non-Makah commercial whaling, and that discontinuity should therefore not be used as an argument against resumption of their traditional activities. St Lucia echoed the view that the Commission must be sensitive to the plight of a people deprived of their traditional and cultural rights, particularly as the species was not threatened. Germany was of the opinion that the right of a native community to define its cultural needs should be respected.

In response to Brazil, the USA pointed out that no more than five whales were required to meet the spiritual and cultural demands, and noted that it is committed to humane killing methods; the use of modern technology helps achieve this goal.

Spain queried the legal aspects of the domestic treaty and USA international obligations under the ICRW. A number of delegations expressed the view that the domestic obligations of the US Government were not to be considered by the IWC and should in no way affect the USA's obligations under this and other international treaties. The USA commented that although under the Constitution the US Congress may abrogate an Indian treaty, this had not been expressly done.

Replying to Japan, the USA pointed out that the Makah hunt contained no commercial element whereas community based whaling did. It also clarified its position at CITES against the downlisting of whale species which was in line with the IWC moratorium on commercial whaling and the primacy of decisions on whales and whaling related activities resting with the IWC. It was opposed to commercial whaling and had domestic legislation which prevented such activities.

Antigua and Barbuda and Denmark expressed full support for the Makah request, as did St Vincent and The Grenadines, noting that cultural need had been established beyond doubt and should be enough to ensure acceptance of the request.

10.3.2.1 REPORT OF THE SCIENTIFIC COMMITTEE

The Chairman of the Scientific Committee reported to the Aboriginal Subsistence Whaling Sub-committee that the last Comprehensive Assessment of this stock was in 1993, and substantial new information had become available since then. Based on data and analyses examined this year it had been agreed that a take of up to **482 whales** would be sustainable and likely to allow the population to stabilise above the MSYL. The Scientific Committee had provided no information on rates of increase towards MSYL as the stock may already be above that level.

10.3.2.2 ACTION ARISING

In the Commission there was extended discussion of the two requests in the context of a joint proposal by the Russian Federation and the USA for a catch of 620 gray whales over five years, with an annual limit of 140.

The Russian Federation recalled that gray whales had been hunted since ancient times, but the people had not been allowed to hunt during the Soviet period. The representative of the Indigenous People's Association spoke of the desire to resume the traditional hunting lifestyle, to build traditional skin boats and to develop the weapons and improve the darting gun with the assistance of the Alaskan Eskimos. There are 15 villages with a long-standing relationship with gray whales, and small whales are being taken now which means that really more are needed than were formerly taken by the government ship to feed the families.

The USA mentioned the 1,500-year tradition of whaling by the Makah tribe, which is secured by the Neah Bay Treaty. The people now live in poverty and the meat will help their nutrition. Weapons development is proceeding and the hunt will be completely non-commercial. It expected the Makah catch to average four whales a year and not to exceed five.

Many delegations drew a distinction between the two requests. Australia recognised that the Chukotka harvest will be by the people themselves and not on their behalf by the Contracting Government. Aboriginal subsistence whaling involves a continuing dependence which it did not think the Makah situation met. It mentioned the internal dissent and court proceedings and called on the USA to prevent a resumption of whaling by its citizens.

Austria asked why there was no differentiation between struck and lost, to which the USA replied that this was the traditional way the limit had been handled in the past. Austria also suggested the addition of the words "where subsistence and cultural needs have been recognised by the IWC" to the preambular paragraph describing who can take the whales. Finland supported this addition.

The Netherlands, Switzerland, Spain, Chile, Brazil, South Africa and the Solomon Islands all indicated that they would not break a consensus if one existed, but reservations were expressed on the Makah need. The annual review of the provision and the restriction of use to human consumption only was noted, as was the necessity to complete a new aboriginal whaling management scheme quickly.

The UK accepted the Chukotka need but was not convinced that the Makah need was established and still had concerns over the killing methods. New Zealand also supported the Chukotka request but, on a personal visit, its Commissioner had failed to find the Makah need and it was disappointed with the link between the two requests.

Denmark, Monaco, Norway and Ireland supported both requests, Monaco mentioning the wish to maintain cultural as well as biological diversity.

Mexico found this a difficult decision. The gray whales are born in its waters and are no longer endangered. It had no doubts over the Chukotka request, but the Makah was different, as part of the richest nation in the world in an area of endangered habitat. It could not support a joint quota for the stock and would abstain.

Japan, while supporting the proposal, pointed out that its own request for an interim relief quota continued to be denied and again raised its concerns over the sale of craft products to tourists when gray whales are listed on CITES Appendix I as endangered, which it thought ridiculous. The USA stated that handicrafts have a specific exemption in trade.

After further consultations to refine the language, a broad consensus was reached to accept the amendment of Schedule paragraph 13(b)(2) as shown in Appendix I I. This included the addition of the wording 'whose traditional aboriginal subsistence needs have been recognised' in the chapeau paragraph, and noting the extensive comments made by delegations in the preceding debate.

10.3.3 North Atlantic West Greenland stock of fin whales

10.3.4 North Atlantic West Greenland stock of minke whales

10.3.5 North Atlantic Central stock of minke whales

These three items were dealt with together.

Denmark stated that the present catch limits are equivalent to 500 tonnes per annum while the agreed need recognised by the Commission for the West Greenlandic people is for 670 tonnes, a difference of 170 tonnes. It would like to reduce that difference. Through an Action Plan on whale hunting methods introduced in 1991, Greenland started the developments and improvements of hunting methods and gears in cooperation with the hunters, Dr E.O. Øen, the former Kongsberg Small Arms in Norway, shipyards and ship consultants in Greenland. The concept of the Action Plan is first and foremost to reach a safe use of the existing and new technologies and to improve killing efficiency and in that way to reduce the time to death of minke and fin whales caught with harpoon cannons. The introduction of the penthrite grenade in Greenland from 1991 has reduced the time to death. However, the introduction of this new technology quickly showed that there was a need to recondition harpoon cannons and standardise harpoons used in whaling in Greenland if the goals mentioned above are to be achieved. There are considerable transaction costs in connection with the introduction of new technologies in whaling. The Greenland Home Rule sees whaling as an

important part of the livelihood in today's modern Greenland and has therefore provided a significant amount of money over the last seven years.

Switzerland mentioned past questions about killing methods and concerns regarding the real size of the stocks, and also commented that before a quota was increased, the Aboriginal Subsistence Whaling Management Scheme needed to be completed and implemented. The Netherlands noted that it had not previously been aware of the intention to increase the quota and questioned the need given the improvements in technology and hunting efficiency. Denmark was unable to say at this stage whether it would mean an increase in just minke whales or both fin and minke whales. In response to a question from Brazil, Denmark gave approximate figures of 170 tonnes being equal to 85 minke whales or 17 fin whales. Spain was concerned over the uncertainty about the status of the stocks involved and suggested this needed examination as noted by the Scientific Committee, as well as the collection of complete data from the countries involved. In response to Austria, Denmark stated that it was seeking new ways to make the killing process quicker and more humane in line with IWC requests and that the 18.2111 minimum size limit for fin whales was set by the IWC. The USA noted that it had previously supported West Greenland in its proposals for aboriginal subsistence and looked forward to seeing the proposed Schedule Amendment. Monaco noted the need to look carefully at the conservation status of stocks and commercial aspects of the meat-to-market process.

St Vincent and The Grenadines supported Denmark.

10.3.5.1 REPORT OF THE SCIENTIFIC COMMITTEE

The Chairman of the Scientific Committee reported the most recent management advice on the first two of these stocks to the Aboriginal Subsistence Whaling Sub-committee. The Scientific Committee had recommended that further investigations of stock structure and size be conducted in this region.

The Scientific Committee had agreed, for both minke and fin whales off West Greenland, that it does not believe the animals comprise single stocks but the area for the whole stock of each is unknown. Both estimates are thus underestimates but it is not known by how much. The estimates are fin whales: 1,096 (95% CI 5x-2, 106); minke whales: 6,385 (CV = 41%). Fin whale abundance estimates for the central Atlantic have been reported to NAMMCO but have not been reviewed by the IWC Scientific Committee.

For East Greenland minke whales, which the Scientific Committee regards as part of the North Atlantic Central stock, the Commission had in the past noted the information on abundance provided and established a catch limit of 12 animals.

10.3.5.2 ACTION ARISING

In the Commission, Denmark submitted a proposal to retain the fin whale catch unchanged at 19 per year; the same quota of 12 minke whales from the Central stock, but with a carry-over of up to 3 unused from any year; and an increase in minke whales from West Greenland to 175, compared with the present maximum of 165, with a carry-over of up to 15 unused whales each year; the last two quotas to be set for the next five years. This would narrow the gap between the 500 tonnes take and 670 tonnes need documented, which would be satisfied by an extra catch of 85 minke whales.

Denmark pointed out that the Scientific Committee agrees the stocks are above the levels at which some catches can be taken. It believes that the stock sizes are underestimated, and

A number of delegations warmly welcomed the report. Chile commented that it had recently held a seminar to promote its embryonic whalewatching activities. It hoped IWC members would be able to offer assistance to nations in this situation. Commenting on differing aspects of the report, delegations identified the following as reasons for seeking to promote whalewatching around the world:

- (1) it offers new opportunities for development for coastal communities;
- (2) it can represent substantial economic benefits;
- (3) it is a sustainable, non consumptive use of cetaceans offering opportunities for non-lethal research;
- (4) it offers opportunities for education and development of research methodologies.

Ireland commented that it strongly supported the development of whalewatching and had originally included it as one of the elements which together made up the 'Irish Initiative'. In line with the now widespread view that this component should be set aside for the time being, Ireland would not be making any proposals on the subject. It would, however, support other initiatives designed to promote whalewatching.

The UK drew attention to the statistical and economic growth of whalewatching around the world. It supported the conclusions and views in the report but commented that its somewhat specialised language did not make it readily accessible to non-specialists. New Zealand agreed, and offered to provide a brief executive summary before the end of the meeting.

The UK also highlighted a Workshop held recently in Chile on Legal Aspects of Whalewatching, noting that the report, not yet available, would be valuable to IWC.

Other delegations expressed contrary views ranging from outright opposition to any IWC involvement in whalewatching on the grounds that it is outside the competence of this organisation, to expression of caution about the possible exaggeration of socio-economic benefits and the potential danger of promoting such an activity growing rapidly all over the world, which in some cases would be unregulated and uncontrolled.

Other arguments included:

- (1) the risks to whales and humans associated with promoting a potentially hazardous activity;
- (2) the need to identify and quantify possible negative effects;
- (3) the imperative not to deprive some communities of a source of food;
- (4) the need to assess possible impacts before enhancing economic benefits;
- (5) the need to consider carefully before setting priorities;
- (6) the risk of sending the wrong signal and depriving communities of vital resources in areas where dolphins represent a source of food; and
- (7) the risk of introducing confusion into local culture and tradition.

Responding to comments, New Zealand characterised the Workshop Report as a land-mark report. It agreed with Grenada that it was not essential or even necessarily desirable for the IWC to regulate whalewatching; that is the role of coastal states. It was, however, appropriate for the IWC to collate and review information.

In conclusion, the Chairman of the Technical Committee noted that there appeared to be general support for the continuation of research into whalewatching; it might be

necessary to develop guidelines to protect both whales and whalewatchers. He also stated that there are differing views on the emphases and priority such work should be allocated in the Scientific Committee. He reported accordingly to the Plenary.

6.2 Action arising

The Commission took note of the comments and discussion in the Technical Committee, and accepted the recommendations from the Scientific Committee to apply the general principles for whalewatching to all whalewatching activities involving right whales, and the requirements for studies to assess the need for special protected areas.

7. ADOPTION OF REPORT OF THE TECHNICAL COMMITTEE

The Technical Committee had met under the Chairmanship of Prof. 13. Fernholm (Sweden), the 'Vice-chairman of the Commission, to discuss Agenda Items 5 and 6. Its report was formally adopted by the Commission.

8. HUMANE KILLING

8.1 Report of the Humane Killing Working Group

The Humane Killing Working Group met under the Chairmanship of Dr A. Nouak (Austria).

8.1.1 Name of the Working Group

Norway summed up the situation after last year's meeting in Monaco where several delegations had expressed views on the use of the term 'humane killing'. It noted that several interpretations of the term had been advanced, and concluded that the understanding of this term was influenced by very subjective perceptions in addition to differences in cultural and traditional backgrounds. On this basis, Norway proposed that the name of the Working Group should be 'Working Group on Hunting Methods' as this name would cover all the relevant aspects of discussion in the group.

A broad range of views on the many interpretations of the term 'humane' were presented and discussed. It was noted that there are a wide range of cultural and social influences on the views and feelings evoked by its use: and that it seems to take on a different meaning depending upon the species to which it is applied. The UK considered that the term 'humane', when applied to killing methods, meant killing without causing suffering; and to drop the term would suggest that the IWC was no longer concerned to achieve this objective. The Working Group was unable to reach agreement and the matter was referred to the Plenary.

Two main views emerged:

- (1) that the word humane be removed from the name of the Working Group (i.e. Working Group on Hunting Methods) to avoid misinterpretation of the scope of issues to be dealt with there;
- (2) that the word humane remain in the title of the Working Group to ensure that it is clear that the IWC still intends to pursue the development of more humane methods and that although there may be differences of opinion, these need to be debated in this forum.

The Netherlands suggested a compromise which was supported by several delegations - that the title be changed to 'Improvement of Hunting Methods'. This was supported by

Norway amongst others. However, Japan stated that it did not believe that further improvement was possible in some circumstances.

New Zealand stated that in its view it was important to retain the name of the Working Group, so that it could continue to focus its attention on such issues as time to death and insensibility. It acknowledged that there were differences of opinion amongst delegations about humane killing that should continue to be debated, and that if the Working Group were to only consider hunting methods, it could lose that focus and simply receive technical reports.

Japan brought to the attention of the Group its comments on this issue from last year, i.e. that the issue is outside the competence of the IWC under the terms of the Convention. However, it noted that it may contribute information and participate in the Working Group on a voluntary basis. Japan stated that it had fully cooperated by responding to the recommendations of the Working Group in the past, but questioned the apparent difference in times to death and humaneness accepted for aboriginal subsistence catches and those expected in other types of whaling operations.

St Vincent and The Grenadines agreed that the topic of humane killing fell outside the competence of the IWC.

8.1.2 Information on improving the humaneness of aboriginal subsistence whaling

IWC Resolution 1997-1: (1) welcomed the steps taken so far by the aboriginal subsistence whalers of the USA, the Russian Federation and Greenland to improve the humaneness of whaling techniques in aboriginal subsistence hunts; (2) urged them to do everything possible to reduce still further any avoidable suffering caused to whales in such hunts; (3) requested the USA, the Russian Federation and Denmark to continue to inform the Commission on an annual basis of progress made in this matter, and to provide other information 'concerning the taking of whales under aboriginal subsistence quotas; and (4) requested all Contracting Parties to provide appropriate technical assistance to improve the humaneness of aboriginal subsistence whaling. It also agreed to consider this issue at Annual Meetings of the Humane Killing Working Group and requested that the next Workshop on Whale Killing Methods should review the data received by the Commission on this matter.

The USA had commented last year that the lateness of the 1997 meeting, combined with the early start of the 1998 meeting, would make it difficult for them to respond meaningfully on the subject of improving the humaneness of aboriginal subsistence whaling at the 1998 meeting of the Working Group. It also stated that the 1998 Makah hunt would not have begun by the time of the Annual Meeting.

At the present meeting, the USA presented the following information. Concerning the Makah, the development of the weapon system described last year and the training of hunters was continuing. During the Makah hunt, all relevant data will be gathered for a report to the planned Workshop. In the Alaskan Eskimo bowhead hunt, the penthrate grenade continues to show great promise for improving the humaneness of the hunt, particularly given the improved fuse mechanism. Of twenty bowheads landed in the autumn of 1997, 12 were landed using the penthrate grenade, and only one animal struck with this weapon was lost. This one loss was attributed to adverse weather and associated sea conditions. The Eskimo hunters are pleased with the weaponry and the Alaskan Eskimo Whaling Commission had ordered more such devices for use in the hunt presently underway.

Denmark, like the USA, had little new information to report due to little or no hunting occurring in the intervening period between the Annual Meetings, which coincided with the northern winter. Improvements to the Greenland hunt included the overhaul of all but eight of the harpoon cannons and new regulations on techniques for controlling the use of the penthrate grenade put in place by the Greenland Home Rule Authority. Problems with violations of national regulations which had been reported to the police were attributed to the high cost to individual whalers of the new weaponry.

The Russian Federation presented a paper on the Chukotka gray whale hunt. During the 1997 season, 79 whales had been harvested (48 males, 31 females). The hunt had been conducted from whaling boats and sea kayaks under the direct control of fishing inspectors from the Chukotka Regional Fisheries Inspection Agency. Rifles were used in most settlements, and 20 darting guns received from the Alaskan Eskimos were also used for the first time. The use of darting guns as an aid in the hunt resulted in catches for 16 out of 17 shots. Time required for each catch using rifles was 30 to 120 minutes (average 77 minutes); while catches using darting guns took approximately half as long (36 minutes average).

Japan commented that the wording 'improving the humaneness' in the title of Agenda Item 8.1.2 is not appropriate because of its vagueness, notwithstanding how nations involved in aboriginal subsistence whaling perceive this terminology.

8.1.3 Workshop on Whale Killing Methods

At last year's meeting it was agreed that a Workshop on Whale Killing Methods should be held at the same time as the Scientific Committee meeting, i.e. before the 1999 Annual Meeting, and that the annual meeting of the Working Group should be retained. It had been agreed that planning for the 1999 Workshop should occur at the 1998 meeting.

The question of a possible change to the name of the Workshop was raised, but it was noted that this had been decided previously and was not open for discussion.

A copy of the Terms of Reference from the last Workshop, held in Dublin in 1995, was circulated and their relevance to the 1999 Workshop discussed. Japan noted that the intention of the Commission, as expressed in IWC Resolution 1997-1, was that the Workshop should focus on aboriginal subsistence whaling, and suggested that the Workshop should be limited to aboriginal subsistence whaling. However, it was agreed that whale killing methods for all types of whaling would be included, and that the terms of reference of the Workshop should be similar to those for the Dublin Workshop, thereby not excluding the comparison with hunting methods of large terrestrial mammals. Norway repeated its request from last year that Sweden and the UK submit to the workshop data on the efficiency of the hunt of elk/moose (*Alces alces*) and red deer known to exist in these countries.

There was disagreement on the use of the word 'humaneness' in the list of the Terms of Reference for this Workshop with conflicting views:

- (1) that the word humaneness should be removed from paragraph (v) of the terms of reference of the Workshop - it was suggested it be replaced with 'to review killing techniques';

- (2) that removing the word *humaneness* from the terms of reference for the Workshop would send a message to the international community that the IWC did not consider this issue important, while some delegations believed it to be a critical part of the Commission's work.

After substantial discussion, the Working Group could not agree fully on this matter and it was referred to Plenary.

The Chairman summed up the agreed plans for the Workshop as follows.

TIME AND PLACE

The three day Workshop will be held after the 1999 Scientific Committee and would overlap one to two days with the Committee and Working Group meetings of the Commission. This would allow expertise within the Scientific Committee to be utilised, and would not disadvantage nations with small numbers of delegates and scientists needed in other Working Groups. The overlap would be timed to coincide with a non-scientific meeting such as Finance and Administration to further reduce the likelihood of important participants not being available. The Advisory Committee would decide on the exact timing. Final confirmation of the location of the next Annual Meeting is not yet available. The Workshop will be in the same location as is agreed for the meetings of the Scientific Committee and the Commission.

FINANCE AND ADMINISTRATION IMPLICATIONS

A request will be made in the Finance and Administration Committee for an amount up to £10,000 for Invited Experts at the Workshop who are either not members of national delegations and/or from non-IWC member countries with required expertise. The Chairman of the Finance and Administration Committee commented that he believed that amount could be provided for in the budget.

CHAIRMAN OF WORKSHOP

Norway proposed Dr S. Ridgway (USA) the Chairman of the previous workshop (however health problems might prevent his participation). It was therefore suggested that Prof K. Nielsen (Denmark) be asked to replace Ridgway. Denmark supported this proposal. In case neither of these two were available, the Working Group recommended that the selection of Chairman be referred to the Advisory Committee with the understanding that any member country could send in a nomination for consideration.

PARTICIPATION

The importance of including sufficient scientific and technical expertise as a priority was agreed, as was the participation of other members of any delegation including hunters. Participation by non-member nationals would be by invitation only.

8.1.4 Any other business

The UK welcomed the report from the Russian Federation on its aboriginal subsistence operation. It requested information from Denmark on the Faroese pilot whale drive; and made two separate requests to Japan – one on the use of the rifle as a replacement for the electric lance as a secondary killing method in research whaling and the other on the use of electricity in the Dall's porpoise fishery.

Denmark commented that it did not recognise IWC competence on small cetacean issues. It noted that a representative of Faroese Home Rule would be at the meeting in the next few days who may provide information

to individual members, Denmark was not in a position to comment on Faroese Home Rule issues.

Japan repeated its view that the IWC was not competent to deal with small cetacean issues, and that it therefore would not provide information on the Dall's porpoise fishery. Japan further stated that it believed the *humaneness* issue is outside the competence of the IWC. However, interested member countries, non-government organisations and members of the press could request information from Japan on the use of the rifle as an alternative to the electric lance and it would provide such data. Japan further stated its willingness to be open in giving information on time to death to anyone, including the public.

Some delegations recalled a statement made by Japan at the 49th Annual Meeting on replacement of the electric lance with the use of rifles. Japan had undertaken to report to an appropriate forum of the Commission on progress and results made in this process. They noted that the withdrawal of the proposed Schedule amendment on the use of the electric lance at that meeting had been done on this basis. In responding, Japan repeated that it cooperated with IWC on a voluntary basis regarding provision of information. It stated that it would be providing this information on a voluntary basis to the Workshop in 1999, which would be composed of scientific and technical experts.

Norway outlined last year's research on hunting methods and the use of new equipment, veterinary inspections, number of animals taken and time to death in the minke whale hunt for 1997. A new penthrite grenade had been trialed on one vessel in 1997 and large-scale field trials using this weapon would take place in the 1998 season. It would provide further information to the Workshop next year.

8.2 Action arising

In the Plenary, Japan repeated its view that this subject is outside the terms of reference of the Commission. It believes that humane killing is a subjective term and proposed the more neutral term 'hunting methods'. The UK recalled the long history of consideration of this topic in the Commission since 1959, and thought the meaning of humane killing was clear – to kill or render insensible with minimum suffering. It recognised that some other languages did not have the same understanding of the term, but emphasised the ordinary English meaning. It proposed that it was not necessary to hold a meeting of the Working Group after the Workshop next year, but to reconvene it the following year, when the terms of reference and name could be reconsidered.

Chile supported the suggestion of the Netherlands for the title 'Improvements of Hunting Method:', and an extensive debate followed on these various proposals. Norway and Sweden supported a UK suggestion that the Working Group and the Workshop should have the same name 'Killing Methods'. New Zealand took a similar position and thought it should be the Commission and not the Workshop who should decide, a view shared by Denmark. France stated that it believed that the Commission does have competence in the matter and believed that the Working Group should find a solution to the question of the name. Antigua and Barbuda suggested 'Gear and Methods'. During discussions, the USA, Spain, Australia, Netherlands, Finland, St Lucia, Oman, South Africa, Italy, Switzerland and Germany all expressed support for the position set out by the UK. The Republic of Korea thought it appropriate to use the term 'Hunting Methods'. Monaco commented that although this was a semantic problem, it was culturally controversial and any misunderstanding should be removed.

The Chairman concluded that it was clear that there was no consensus at this meeting. He stated that the Working

any decision on the name should be taken by the Plenary.

Japan then proposed that 'humaneness' should be deleted from the terms of reference of the Workshop, and a further round of comments ensued. The UK expressed surprise at this proposal, since the terms of reference for the Dublin Workshop had been accepted, noting that the issue of the safety of the crews had been included. New Zealand and the USA concurred. Japan stated that there was not a common understanding of the term 'humaneness' and that it should be dropped, since this is not an ethics committee; it preferred to talk of killing methods. The Netherlands announced that it has scientists at work on humane killing issues and will hold a meeting of experts later this year to consider practical proposals.

Italy, Switzerland and Sweden, supported by Finland, spoke of the need to retain the concept of suffering in the terms of reference, which can be judged by time to death, and Australia commented that how to measure this was the role of the Workshop. Antigua and Barbuda pointed out that these are substantive issues. It believed that killing cannot be considered humane, and believed that retention of this word is repugnant. Dominica and St Kitts and Nevis shared this position, and Grenada spoke of humane killing of other animals and the use of the electric chair for humans. Monaco believed that no-one objected to consideration of time to death and reduction in suffering, the evidence for which should be assembled, a position shared by South Africa. The Chairman recognised that there was support for consideration of the issues but dispute over the word 'humane', with reservations by a number of countries. He established a small group comprising Monaco, UK, Japan, Norway and the USA to consider the terminology issue and to report back, to Plenary.

On its return, the small group reported that it had reached no specific agreement. The USA had considered that the introduction of the word 'practicalities' may clarify matters. Norway had introduced a substantial revision to the Terms of Reference which could not be accepted by others. Subsequently, revised language for paragraph (v) of the Terms of Reference was agreed. (The final Terms of Reference are shown in Appendix 1). Australia wished to emphasise that death should be without pain, stress or distress, with instantaneous insensibility and so could not join in a consensus. The UK shared some of these concerns but agreed to the terms given in Appendix I in order to allow the Workshop to carry out its work; the UK was not attempting to find a universal definition of humaneness.

Finally, New Zealand thanked Japan for providing it with data on the use of the electric lance, although it was not in the form expected, and it looked forward to the Workshop next year for further information to be provided on a voluntary basis. Japan stated again its view that this matter is outside the competence of IWC, but it has no intention to withhold the information which it will provide to interested parties, Governments, NGOs and the Press. It will submit data to the expert forum of the Workshop.

9. INFRACTIONS, 1997 SEASON

9.1 Report of Infractions Sub-committee

The Infractions Sub-committee met with Mr N. Yagi (Japan) in the Chair.

Norway, supported by Japan, referred to the terms of reference and stated its belief that the Agenda Items covering stockpiles of whale products and trade questions are not within the scope of the Convention. Consequently, it proposed that these items be deleted. Japan noted the adoption of a decision on trade in whale meat adopted at the 10th Conference of the Parties to CITES, and both it and Norway stated that they were willing to discuss such matters in what they considered to be the appropriate fora (WTO and CITES). Japan further stated that any relevant information on international trade and market activities would be made available to the public including NGOs and the Press, upon enquiry. The USA and New Zealand did not agree to delete these Items. After some discussion, it was agreed, as it was in 1997, that an exchange of views was nonetheless useful.

9.1.1 *Infractions reports from Contracting Governments*

The Infractions Reports received by the Commission in 1997 were summarised. Denmark noted that although the information in the document was correct, it wished to clarify that the number of strikes (14) for East Greenland minke whales was not relevant. The point is the 11 landed minke whales, as the Schedule allows 12 landed minke whales in East Greenland each year.

9.1.2 *Reports from Contracting Governments on availability, sources and shipments of whale meat and products, and relevant developments; and on stockpiles and sale of whale meat and products, domestic laws and enforcement actions on illegal possession and sale*

The Chairman noted that for the last four years Resolutions on this issue had been adopted by the Commission, and that no document was submitted on this issue from the member governments this year.

The USA asked if Japan or Norway had any additional information about the seizure on 6 April 1996 by Japanese customs of five tons of whale meat packed in five tons of fish. The shipment had originated in Norway but when seized in Japan, the shipment was on a Korean vessel coming from Korea. The USA considered that this was an unusual case and the Sub-committee had yet to receive any new information on the investigation of the matter from Japan. Japan and Norway did not comment on this issue, but Japan noted that last year it had supplied information on a voluntary basis on these issues.

New Zealand sought information on progress with the peer review of genetic analyses of market samples of whalemeat that Japan had undertaken to conduct at last year's meeting. New Zealand expressed its thanks to Japan for its willingness to conduct the review and hoped that a report would be submitted at next year's meeting. Japan stated that it could not begin the review as the original samples used by the New Zealand researchers had not been made available, despite the request made by Japan to the researchers. New Zealand noted that it had not received such a request and the samples remained in Japan as required under international legislation. New Zealand offered to facilitate access to the samples where possible. Japan stated its view that this was a domestic issue and that it had no intention of formally providing the results to the Commission, reminding the meeting of its earlier statement regarding the competency of the IWC on these issues, but noting its willingness to make the results available at the request of individuals, to publish them, and to make them available publicly including to NGOs and the Press.

10. ABORIGINAL SUBSISTENCE WHALING

10.1 Report of Aboriginal Subsistence Whaling Sub-committee

The Aboriginal Subsistence Whaling Sub-committee met under the Chairmanship of Mr J.K. McLay (New Zealand). It considered Agenda Item 10.3 before Item 10.2.

10.2 Aboriginal subsistence whaling scheme

10.2.1 Report of the Scientific Committee

As last year, the Scientific Committee had agreed that it was appropriate for the Chairman of its Standing Working Group (SWG) on the Development of an Aboriginal Whaling Management Procedure (AWMP), Mr G.P. Donovan (Secretariat) to present its work to the Commission. In this presentation, Donovan recalled that the Scientific Committee's work on the AWMP was driven by the (summarised) objectives given by the Commission to:

- (1) ensure that the risks of extinction to individual stocks are not seriously increased by subsistence whaling;
- (2) enable aboriginal people to harvest whales in perpetuity at levels appropriate to their cultural and nutritional requirements, subject to the other objectives; and
- (3) maintain the status of stocks at or above the level giving the highest net recruitment and to ensure that stocks below that level are moved towards it, so far as the environment permits.

In particular, highest priority shall be accorded to the objective of ensuring that the risks of extinction to individual stocks are not seriously increased by subsistence whaling.

The Chairman of the SWG noted that the Scientific Committee appreciated the Commission's answers to its questions last year and that these were taken into account in its discussions this year. He briefly summarised the more scientific aspects of the AWMP development process, highlighting those matters most relevant to the Aboriginal Subsistence Whaling Sub-committee. He noted that the Scientific Committee is assessing the value of the performance statistics it uses on a regular basis and will take into account advice from the Commission when updating these, for example, with respect to variation in strike limits.

The development process is similar to that of the RMI' in that the use of simulation trials to examine the performance of candidate *Strike Limit Algorithms* (SLAs) is fundamental to the approach. A number of aspects in the simulation framework are more relevant to the Aboriginal Subsistence Whaling Sub-committee, including the questions of block quotas and carryover (this will be incorporated into the final procedure), multi-species issues (which are discussed below), and survey frequency.

The issue of comparison of the AWMP with the RMP had been raised by some members of the Commission in discussions last year. The Scientific Committee had this year reiterated that its primary purpose was to develop an AWMP that fulfils the Commission's objectives. However, it recognised the interest in being able to compare any eventual SLA with the CLA (*Catch Limit Algorithms*) of the RMP and noted that trials could be developed in the future for purely comparative purposes, although these may not reflect real situations for which the SLA is to be used.

Some members of the Commission also noted that comparison of any proposed SLAs with the current Schedule paragraph 13(a) approach would be useful. Some work has already been carried out on this and this will continue.

As indicated last year, the Scientific Committee began to consider a new fishery type, type 3, which referred to small populations (~ 300 animals). This work is still at the exploratory stage.

The intersessional period this year had been very short, so the Scientific Committee had relatively few simulation results to review. On the basis of the results available to it, it reviewed, and where necessary revised, the trial structure for fishery type 1 (cases where there is relatively little available information and where there are stock identity problems) and 2 (cases where there is a relatively large amount of information and Schedule paragraph 13(a) has largely been met).

The Chairman of the SWG then turned to issues of direct relevance to the Aboriginal Subsistence Whaling Sub-committee and included under the Committee's Agenda Item 'Dialogue with Commission and hunters'. He noted that the Scientific Committee had paid particular attention this year to addressing how it could ensure that as rapid progress as possible could be made towards providing the Commission with advice on an AWMP and to provide the Commission with its view of what form an AWMP might take.

The Scientific Committee had agreed in 1996 that *Initial Exploration Trials* should be case-specific rather than generic because there are a limited number of cases for which aboriginal subsistence harvesting is likely. However, at that time, consensus was not reached on whether the AWMP should include a generic SLA or case-specific SLA.

At this meeting, the Scientific Committee agreed that there were three options:

- (1) an SLA which is completely generic;
- (2) a generic core SLA with case-specific modifications; and
- (3) completely case-specific SLAs.

The Scientific Committee agreed that in principle it would be preferable to have a single generic SLA. However, given the results so far and the well-documented differences between the fisheries in terms of data availability, stock identity complexity and the nature of the fisheries themselves, the Scientific Committee stated that it was extremely unlikely that a single suitable generic SLA could be developed. It is therefore clear that either alternatives (2) or (3) are most likely to enable it to satisfy the Commission's objectives; it agreed that to the extent possible it would be preferable to follow option (2).

The Scientific Committee suggested that a likely potential scenario is that the Commission might establish an Aboriginal Whaling Scheme that comprises the scientific and logistical (e.g. inspection/observation) aspects of the management of all aboriginal fisheries. Within this, the scientific component might comprise some general aspects common to all fisheries (e.g. guidelines and requirements for surveys and for data c.f. the RMP) and an overall AWMP (within which there will be common components and case-specific components).

The Chairman of the SWG stressed the importance of this scenario for the future work of both the Aboriginal Subsistence Whaling Sub-committee and the Commission. One important implication is that it will be possible to develop SLAs for some stocks before others. The Scientific Committee agreed that it could best fulfil its role of providing the Commission with advice if it presented available components of the AWMP as and when they were ready. The SWG had not been in a position to develop a precise timetable for its work at this meeting but believed it would be in a stronger position to do so next year.

Given this scenario, the Chairman of the SWG then reported on the Scientific Committee's view on likely progress for each stock currently subject to aboriginal whaling in turn.

GREENLANDIC STOCKS

The Scientific Committee had agreed that while providing advice on the Greenlandic fisheries was a matter of the highest priority, it had never been able to provide satisfactory advice on those stocks due to the lack of the requisite data, particularly on stock identity and abundance. This was not intended as a criticism of Greenlandic scientists, but as a positive contribution to future work, recognising the enormous practical and logistical difficulties faced by them. The Chairman of the SWG referred to the rationale and need for intensive research on Greenlandic stocks. The Scientific Committee had strongly recommended the proposal to establish a Working Group to develop a costed research programme for Greenlandic stocks in cooperation with Greenlandic scientists. He noted that the Committee should be in a stronger position to develop a timetable for providing a recommended *SLA* for this multi-species fishery when the results of the research programme begin to become available.

BERING-CHUKCHI-BEAUFORT SEAS STOCK OF BOWHEAD WHALES

The Scientific Committee noted that the Commission had established catch limits for this stock until the year 2002. It therefore agreed that its goal would be to recommend a *SLA* for this fishery to the Commission by that year. It hoped to be able to give the Commission more advice on whether this was achievable after its next meeting.

EASTERN STOCK OF GRAY WHALES

The Scientific Committee noted that the eastern stock of gray whales is essentially a fishery type 2 stock; a single *SLA* (or minor variants) should be applicable to both gray and bowhead stocks. The Commission had also set catch limits until the year 2002 and again the Scientific Committee agreed that its goal should be to try recommend an *SLA* by that date.

ST VINCENT AND THE GRENADINES HUMPBAC WHALES

The SWG has not yet considered this fishery in any detail. The Scientific Committee is intending a major review of North Atlantic humpback whales at the 2000 meeting that will be relevant to the development of an *SLA* for this stock.

10.2.2 Discussion

Regarding the development of the AWMP, the Netherlands indicated the importance of comparing it to the RMP to determine if there is uniformity in the different procedures.

The SWG Chairman responded that the Scientific Committee recognised the value that some delegations placed on being able to compare the AWMP with the RMP. As was agreed last year, the Scientific Committee placed the highest priority on developing *SLAs* that met the objectives set by the Commission for the fisheries of concern. Once that had been achieved it would be in a position to develop trials to enable a comparison with the RMP to be made. In addition, the Scientific Committee agreed in principle that it would be preferable to have a generic *SLA*. However, it believed that this was extremely unlikely to be the case if the Scientific Committee was to satisfy the Commission's objectives to the greatest extent possible for the fisheries of concern.

Denmark sympathised with the SWG's view. The Netherlands noted that one of the forms of tuning in the AWMP called depletion tuning is an approach very similar to the RMP development.

The SWG Chairman commented that the Scientific Committee had agreed to present the results of both depletion tuning (which had been used in the RMP development process) and H-tuning (a new approach that the Scientific Committee agreed was promising and which can enable a combination of all the Commission's objectives to be incorporated into the tuning process'). He reiterated that the Scientific Committee recognised that the highest priority had been assigned to the risk objective by the Commission. The Scientific Committee places great emphasis on consultation with the Commission throughout the development process and it recognised that it was the Commission that should ultimately decide on the level of trade-offs among the three objectives; as in the RMP development process it would provide the Commission with a range of options to aid it in making its choice.

The UK commented that this is a very difficult area on which to provide guidance, as it appears there is likely to be an inherent trade-off between uniformity and attaining performance using H-tuning. It commented that the goal is to attain the greatest uniformity with the highest level of performance. In recognition of this goal, the Chairman of the Sub-committee suggested that the SWG should provide the Sub-committee with a range of options that identify the options for this trade-off. This would enable the Sub-committee to provide clear guidance to the Scientific Committee and ensure that the Sub-committee plays an active role in making the policy decision on the acceptable level of trade-offs.

The UK agreed with the SWG approach on *SLAs* and noted that for type 1 stocks for which there is very little data, the ICRW Schedule may need to be amended. It indicated, however, that it was premature to consider such matters and it made more sense for this group to focus efforts on non-scientific aspects of such a whaling scheme, such as on the definition of aboriginal whaling.

In the Commission, the UK clarified this statement, that it believes that when it comes to adoption of the AWMP there will need to be substantial changes to the Schedule. That will be an opportune time to look at a number of other issues such as the definition of aboriginal whaling, which is not defined in the Schedule, and perhaps other aspects of management which are not strictly speaking scientific but which should be incorporated into the Schedule.

The Sub-committee confirmed that the process outlined by the SWG was appropriate and should continue.

Regarding the Research Programme on Greenlandic stocks, Denmark noted that it strongly supports the agreement to establish a Working Group that will enable the Scientific Committee to provide satisfactory advice to the Commission. For many years, Greenland has conducted research on large whales in order to be able to evaluate the impacts of its subsistence catches. Hence Greenland recognises the need for scientific information to ensure that its subsistence catches are sustainable. However, it must be kept in mind that not only are survey conditions in Greenland extremely difficult due to the harsh climate, but there are also constraints to the amount of resources Greenland can put into whale research which by nature is logistically, and therefore economically demanding. The type of proposal it expects the Working Group will recommend will be very costly, on the order of £1-2 million, which compared with the population of 5,000

people in Greenland, is a large amount of money. It indicated that the IWC generally approved and recognises the importance of aboriginal subsistence whaling. It looked forward therefore to the IWC finding a solution to the data problem at the lowest possible cost. In addition, members of the IWC may be willing to cooperate in providing funds to make such research possible.

A representative of the Greenland Home Rule Government supported the Danish intervention and confirmed its support of the research, but also noted the geographical and financial hurdles to conducting research in the region.

The Netherlands pointed out that the RMP requires as input data only catch history and absolute abundance data. For stock identity, a range of plausible hypotheses is assumed. It queried whether the research should be more directed at estimating abundance estimates.

The SWG Chairman responded that, as for the RMP, the Scientific Committee would only design *SLAs* that used data it believed were obtainable. This includes abundance data and this will be one focus of the research programme. In the context of the RMP, stock identity data are important in the context of developing plausible hypotheses for the *Implementation Simulation Trials*. This is also true for any case-specific trials for AWMP development. Good information on stock identity will clearly improve the Committee's ability to work towards fulfilling the Commission's three objectives. This is particularly important for the Greenland multi-species fishery where at present information on stock identity is poor.

Norway pointed out that it will be necessary to consult and cooperate with Canada and Iceland, non-IWC members, in order to be able to obtain sufficient data regarding stock structures and stock abundances of fin whales and minke whales in this region.

The Chairman noted that the Sub-committee welcomed the creation of a Working Group of the Scientific Committee to address the critical research needs for the Greenland stocks as outlined 'in the Scientific Committee report', and looked forward to its report next year.

At this point, the Chairman of the SWG introduced a paper which outlined subject areas upon which the Scientific Committee required direct input from the Commission and, more particularly, hunters. The paper presented three hypothetical scenarios that illustrated possible features (considerable catch variation; considerable catch variation but in a consistent direction; and low catch variation) of *SLA* design that could be incorporated for cases where the stock level, at least initially, was too low to allow total need satisfaction and still fulfil the Commission's risk objective. These scenarios concerned choices related to the question of catch variability and to the weight given to satisfaction of current need versus projected future need. In particular, the Scientific Committee was interested to hear hunters' preferences under such circumstances.

After some discussion in the Aboriginal Subsistence Whaling Sub-committee, it was agreed that these questions involved choices that should be made directly by those engaged in the fisheries, rather than the Sub-committee as a whole, since the scenarios were constructed under the proviso that in no case would the Commission's highest priority objective (related to risk of extinction) be compromised. A group of interested delegations (Denmark, Norway, Russian Federation and USA) was established, to be convened by the Chairman of the SWG. It was agreed that the findings of this group would be incorporated into

the draft report of the Aboriginal Subsistence Whaling Sub-committee, to give other delegations the chance to comment should they so wish.

The Chairman of the SWG clarified that it was his belief that the discussion within the Aboriginal Subsistence Whaling Sub-committee had endorsed the approach that had been outlined by the Scientific Committee for continued development of the AWMP.

The second issue concerned the question of multi-species fisheries. The Chairman of the SWG stated that it was at an early stage in its consideration of this issue. He described one potential approach that involved a two-stage process:

- (1) estimation (using single species *SLA(s)*) of 'upper strike limits' on a species by species basis, to ensure that the risk objective is met;
- (2) superimposition of a multi-species *SLA* to enable greater need fulfilment and improve recovery rates over a single-species *SLA*.

The Scientific Committee has not yet examined this approach using simulation trials or determined principles for weighting allocations by species within the multi-species *SLA*. A number of suggestions have been made for this (these are not necessarily mutually exclusive and combinations can be chosen). The Aboriginal Subsistence Whaling Sub-committee agreed that this matter should also be referred to the group.

In the group, six points were noted

- (1) Advice on these issues should be case-specific.
- (2) The examples referred to scenarios in which fulfilment of the risk objective meant that total need satisfaction could not be reached, at least in the short term. The group agreed that it was unlikely that this would be applicable to the bowhead whale and gray whale cases of the USA and Russian Federation. It was recognised that if need requirements increased substantially in the future, then it was possible that this may become applicable. Should these increased need requirements fall outside the agreed 'need envelopes', additional trials would be required and case-specific advice could then be provided.
- (3) In general, all fisheries would consider that catch limit variability was not a desirable feature (noting that environmental conditions might mean that catches themselves might of necessity vary considerably from year-to-year).
- (4) For the Greenland fisheries, Denmark believed that hunters would prefer catch limit stability, and give priority to current need satisfaction over projected need satisfaction. In such circumstances, (3) would probably be preferable. However, it would consult with hunters when it returned home and provide more specific advice directly to the AWMP intersessional e-mail group via its scientists.
- (5) At present, the issue of multi-species fisheries was only applicable to Greenland. From the hunters perspective, Denmark noted that ranking by species was desirable. It would again consult with hunters after the meeting and provide more specific advice via the e-mail group. Its preliminary advice was that minke whales would be the highest ranked species, followed by fin whales. If catch limits for humpback whales were reintroduced, it believed that they would be middle ranked. When providing more specific advice, it would attempt to quantify the rankings by assigning preferred catch numbers for each species. When considering these

preferences, it believed that hunters would probably prefer a multi-species *SLA* that balanced greatest current need satisfaction (in terms of tonnes of meat) with: (i) the ranking by species/number, and (ii) recovery rates by species that enabled the fastest growth towards total need satisfaction.

- (6) It was possible that in the future, multi-species issues may also apply to the Russian Federation. For example, certain villages had a preference for bowhead whales over gray whales.

10.2.3 Action arising

No specific action was proposed.

10.3 Review of aboriginal subsistence whaling catch limits

10.3.1 Report of the Scientific Committee

10.3.1.1 BERING-CHUKCHI-BEAUFORT SEAS STOCK OF BOWHEAD WHALES

As promised last year, the Scientific Committee had conducted a major assessment of this stock using four methods. The results were similar in three out of the four. They demonstrated that the population appears to be near the Maximum Sustainable Yield (MSY) level, and would probably increase under catches of up to 108 animals. In terms of Schedule paragraph 13(a), appropriate catch levels in these circumstances should not exceed 90% of MSY. The calculations reported therefore indicate that it is very likely that a catch limit of 102 whales or less would be consistent with the requirements of the Schedule.

There was no discussion in the Aboriginal Subsistence Whaling Sub-committee under this Item, but in the Commission Japan outlined the background to the establishment of the new category of aboriginal subsistence whaling in 1978. It related this to reflect on peoples who had been conquered, and believed whaling is needed socially and culturally under certain management systems. It thought aboriginal whaling should conform to the RMP, especially for gray whales where the stock is above the MSY level, and believed it to be wrong to admit only this category.

France responded that regardless of the appellation, the concept of aboriginal subsistence should be kept.

10.3.1.2 NORTH PACIFIC EASTERN STOCK OF GRAY WHALES

The Scientific Committee had no changes to the recommendations made at last year's meeting, when a detailed assessment was undertaken. Last year, the Committee advised that a catch of up to 482 whales is sustainable and likely to stabilise above MSY Level.

New Zealand commented that the Makah tribe have not yet drawn on the quota and asked if the domestic legal challenge to the Makah quota is likely to prevent them from whaling. The USA responded that, while there is a legal challenge on procedural grounds, the ruling is expected as soon as August 1998. The USA is confident the court will uphold the US Government position and that the hunt will commence as planned in Autumn 1998.

10.3.1.3 NORTH ATLANTIC WEST GREENLAND STOCK OF MINKE WHALES

No assessment had been undertaken this year by the Scientific Committee. Advice regarding this stock is addressed under Agenda Item 10.2.1, as is the Danish intervention concerning the Scientific Committee advice.

10.3.1.4 NORTH ATLANTIC HUMPBACK WHALES

The Scientific Committee Chairman reported that no assessment of this stock was undertaken and therefore there was no change to the Scientific Committee's advice regarding this stock. He drew the Aboriginal Subsistence Whaling Sub-committee's attention to the fact that the Scientific Committee will undertake a Comprehensive Assessment of North Atlantic humpback whales at its meeting in 2000.

St Vincent and The Grenadines said it had taken two humpback whales this season, but as the season was not yet over, the takes would not be officially reported to the Commission until next year. While it was open to a general discussion, it noted that a discussion regarding the status of the stock would be more fruitful next year after the Scientific Committee will have benefitted from reviewing the research on the stock and the report of the Government's Fisheries Ministry regarding the taking of the whales.

New Zealand stated that the Scientific Committee this year had received information suggesting that the density of humpback whales in the Windward Islands might be low.

Following up on concerns raised in the previous year, Australia indicated it had concerns beyond the scientific aspects of the hunt. It noted the historical change in the aboriginal whaling operations. In 1989, the Commissioner for St Vincent and The Grenadines stated his country did not want to continue whaling in the future. In 1990, the Commissioner stated that St Vincent and The Grenadines would stop whaling when the single 69-year old harpooner passed away. The report by St Vincent and The Grenadines this year indicates that there is no longer a single harpooner. There is now a new harpooner with a new boat. Australia argued that this changed the nature of the hunt. It also raised concerns over the method used to hunt the animals since it understood that St Vincent and The Grenadines hunts calfed pairs of whales. Unlike other aboriginal subsistence whaling operations, it noted that this is a method of catch which has not been examined for its humaneness. As a result of the aforementioned changes in the nature of the hunt, Australia will expect a much more detailed justification of the hunt next year.

The Netherlands indicated its support of Australia's intervention.

St Vincent and The Grenadines insisted once again on its rights to harvest its quota. It recognised, however, that despite this, the Scientific Committee would be asked to look at the relationship between the cow and calf because these terms are not clearly defined in the Schedule.

The UK supported Australia's comments. It noted that that when the quota was agreed to in Aberdeen in 1996, there was no needs statement. It was approved nonetheless, due to the lack of success in the hunt. The UK noted that the next time St Vincent and The Grenadines requests a quota, it would have to produce a needs statement and would have to address the humane aspects of the hunt in the Humane Killing Working Group, particularly concerning the cow/calf techniques used in the hunt.

Japan noted that the whale taken was a large female whale, which was not lactating. It also stated its belief that the topic of humane killing was outside the competence of the IWC and that local cultural traditions should be respected.

Australia responded that it believed that the IWC did have competence to discuss whale killing methods. It referred to the references to that effect in the International Convention for the Regulation of Whaling and the Schedule and the fact that there was ample precedent for this.

Japan clarified that the issue of humaneness was outside the competence of this Sub-committee.

St Vincent and The Grenadines noted the concerns and indicated it would consider them when preparing its report next year.

The Secretary of the Commission took the opportunity to present a letter from the elderly harpooner in St Vincent and The Grenadines to the Commission written recently indicating his wish to take three whales instead of two in the next season. The Chairman noted the informal nature of the request and advised that, until such a request was put forth by a Government, the letter should only be tabled.

10.3.2 Action arising

The Commission noted that for its long term priorities the Scientific Committee recommended that, while keeping all relevant stocks under annual review, primary attention should be given to intensive assessments of the following stocks at future meetings as follows:

1999 Greenlandic research programme and stocks of bowhead whales other than the Bering-Chukchi-Beaufort stock;

2000 North Atlantic humpback whales;

2001 Fin whales off Greenland;

2002 Minke whales off Greenland;

2003 Eastern and western Pacific gray whales;

2004 Bering-Chukchi-Beaufort bowheads.

It was noted that if this recommendation were followed, the Commission would consider the next catch limits for the Bering-Chukchi-Beaufort stock two years before the next intensive assessment. There is a precedent for this. The current bowhead quota was approved last year when the most recent intensive assessment was undertaken this year. The Aboriginal Subsistence Whaling Sub-committee endorsed the Scientific Committee's time line, recognising that if new information comes to light that would provide cause to change the schedule, it could be revised as appropriate.

The Commission endorsed this approach, and noted the comments and concerns of the Scientific Committee on the apparent low abundance of other stock; of bowhead whales, particularly the Baffin Bay/Davis Strait and Hudson Bay, Okhotsk Sea, and Spitzbergen stocks; the Western North Pacific stock of gray whales; and the West Greenland fin whale stock.

11. COMPREHENSIVE ASSESSMENT OF WHALE STOCKS

11.1 Revised Management Procedure

11.1.1 Report of the Scientific Committee

ADDITIONAL VARIANCE

Some years ago the Scientific Committee specified that, to improve its basis for drawing inferences from trends from surveys, IDCR sightings data should be extracted on several spatial scales over the time series of the surveys. This task has yet to be completed. It agreed that it is still important to complete the work. The required data extraction may take up to two weeks using the DESS computer system. The Scientific Committee recommended that this task receive high priority during the intersessional period. It noted that

this was included in the list of tasks to be undertaken in the work of a proposed part-time position at the University of St Andrews.

ABUNDANCE ESTIMATION

At last year's meeting an intersessional Working Group was re-established to test the performance of abundance estimation procedures over an appropriate range of sighting survey factors. During the intersessional period, two additional estimation methods were applied to the simulation datasets. Also during the intersessional period more sets of simulated datasets with different conditions were created and more replicates of all the datasets were (and continue to be) created so that there will eventually be 100 replicates of each set of data.

The intersessional Working Group also began discussions about what topics should be addressed in the near future. It recognised that the remit was broad and so should focus on topics that are the most relevant to abundance estimates that are currently (or will in the near future be) submitted to the Scientific Committee. The Scientific Committee re-established the intersessional Working Group to continue its work testing the performance of abundance estimation procedures over an appropriate range of sighting survey factors.

IWC-DESS

The Scientific Committee established a Working Group to consider the future maintenance, support and development of the IWC-DESS. It proposed that the best way for the Secretariat to ensure the appropriate maintenance, support and development of the DESS is to fund a part-time post at the University of St Andrews. This would have a number of advantages concerning the working environment, flexibility and continuity. The cost to the Secretariat was estimated at approximately £19,000 plus VAT per annum. Routine requests for data from accredited members of the Scientific Committee and international organisations would still be handled by the Secretariat. The Scientific Committee recommended that the proposal be adopted as a matter of priority.

STOCK IDENTITY

It was suggested that it may be useful for the Scientific Committee to reconsider its definitions of the term stock. The importance of the stock definition, or population subdivision, for the purposes of management and conservation of whale resources by the IWC is obvious. Under the New Management Procedure (NMP), the IWC managed the different whale species using specific 'management units'. An example of these 'management units' is the six management Areas in the Southern Hemisphere used by the IWC to manage the baleen whales species (except Bryde's whale).

To date, most studies on stock identity of large whale species have attempted to test hypotheses that IWC management units (management stocks) correspond to biologically defined entities (biological stocks). There has been substantial development in techniques useful for determining stock structure in recent years, especially genetics-based methods. The Scientific Committee agreed that, given this development, it would be useful to undertake a review with the goal of establishing more useful definitions of the term stock.

An *ad hoc* Working Group was established to develop terms of reference for such a review, and to outline the tasks that it may be useful to address overall in such a review. The

grounds, not the breeding grounds of several baleen whales species whose abundance had been drastically reduced by whaling.

Denmark saw the proposal as a move to close waters to future commercial whaling, and wondered how this related to Schedule paragraph 8(d), which already closed the area to most factory ship whaling.

Japan strongly questioned the scientific content of the proposal and looked forward to the scientific review of the proposal next year, pointing out the abundance and recovery of some stocks. It also saw the possibility of conflict between the Sanctuary and other fisheries and food resources.

The discussion ended after both Brazil and Monaco supported the proposal.

7.2 Action arising

In the Commission, Japan reiterated that its proposed amendments were based on science, and it could not accept the language in Schedule paragraph 7(b) 'irrespective' of scientific findings.

The USA could not support any erosion of the Southern Ocean Sanctuary. It was aware of the robust status of the minke whale stocks but that does not affect the purpose of the Sanctuary. It believed the Commission should wait until the review due in 2004. The Netherlands and Brazil supported this position, as did New Zealand, who noted the vote in the Technical Committee and thought Japan could not be serious.

Norway recalled that it did not participate in the 1994 vote, and supported Japan.

France wished to protect all whale, regardless of their stock status and did not want to break the global approach. It preferred to wait for the full 10 years and so opposed Japan. Chile concurred. Australia also supported the continued integrity of the Southern Ocean Sanctuary, while Monaco wished to consolidate and not erode the Sanctuary.

Antigua and Barbuda supported scientific integrity and supported Japan, as did Dominica, the Solomon Islands, St Lucia, Grenada and St Kitts and Nevis.

Finally, Japan commented that there seemed to be different views on whether the Sanctuary had been established regardless of scientific findings, or if there were factors other than science. It withdrew its right to call a vote.

8. ADOPTION OF THE REPORT OF THE 'TECHNICAL COMMITTEE'

The Technical Committee, composed of all the delegations attending the 51st Annual Meeting, was Chaired by the Vice Chairman of the Commission, Prof. Bo Fernholm (Sweden), and discussed plenary Agenda Items 7 and 13. It adopted its report after review and amendment, and this report was then adopted by the Commission.

9. HUMANE KILLING

9.1 Report of the Whale Killing Methods Workshop

A three-day Workshop on Whale Killing Methods was held in Grenada 17-19 May, just before the Annual Meeting. Dr Sam Ridgway (USA) was prevented by health problems from taking the Chair as originally planned, and so the Vice-Chairman of the Commission, Prof. Bo Fernholm

(Sweden) acted as Chairman. Participants from 19 Contracting Governments attended, together with NGO observers.

9.1.1 Methods in use and development

9.1.1.1 COMMERCIAL WHALING

Norway described the development of a new penthrite grenade, the construction of new harpoons for 50 and 60mm harpoon guns, a study on pathological changes in the minke whale after penthrite grenade detonation, an illustration chart for the position of the brain in the minke whale and also measurements of stress hormones in minke whales. In 1998, 63% of the 625 whales caught died instantaneously (10s) and the mean time from the shot until all signs of life ceased was 198s.

Norway also gave details of its programme to improve weapons and hunting methods during the 1981-86 Norwegian minke whale hunt. Several methods were evaluated, including electricity, drugs and compressed air. None of these resulted in new equipment design or field trials. However, field trials using high-velocity projectiles, traditional and modified cold harpoons and penthrite grenades were conducted. The work resulted in development and implementation of a new penthrite grenade that gave a substantially higher (45%) percentage of instantaneous death than former killing methods (17% with the cold harpoon). The conclusions of the investigation into the rifle strongly suggest that rifles with calibre 9.3mm, .375 and .458 with round-nosed full metal jacketed projectiles have sufficient impact energy and penetration force to kill a minke whale when the projectiles hit in or near the brain.

Norway stressed that the primary killing method (harpoon), is aimed at the thoracic/lung region. The secondary killing method (rifle) is aimed at the head and brain. Work has been undertaken to determine the position of the brain in the minke whale in relation to external features to provide a target area for gunners and also an illustration chart which could be used for educational purposes on whaling vessels from the 1999 hunting season.

For the sake of convenience, information on the Japanese scientific whaling was discussed at this point in the Workshop. Japan commenced its research on whale killing methods on a regular basis in its Whale Research Programmes under Special Permits in the Antarctic and northwestern Pacific Oceans from the 1993/94 season. The object of the research is improvement of whale killing methods to shorten the time to death by analysing the sampling vessels' chase and catch data, and the data from the necropsies of sampled whales. The rapid feedback to the gunners of the efficiency of the rifle shots and the education of the crews has succeeded in reducing the time to death. On no occasion since the introduction of the rifle as the secondary killing method has the electric lance been deployed.

New Zealand asked for information on the use of electricity to kill other cetaceans, in particular Dall's porpoises, but Japan stated it would not enter into discussion on this matter since it considers small cetaceans to be outside the competence of the IWC.

Japan expressed concern that it was always being asked to provide data and yet when similar requests had been made to other countries concerning terrestrial hunts no information had been provided. Requests had been made of Australia for kangaroo culls, Sweden for moose hunts and UK for red deer culls. Norway said that this had been its experience too. In reply, the UK said that it was aware of the outstanding

request and a working paper had been prepared and could be distributed for information. Sweden also presented data on its moose hunt.

9.1.1.2 ABORIGINAL SUBSISTENCE WHALING

The USA described the history of the AEWG's weapons improvement programme since 1987, when it began working with Dr Øien (Norway) to develop a penthrate grenade for use in the Alaskan bowhead subsistence hunt. Field trials of the penthrate grenade conducted in Barrow, Alaska in several years since 1988 have resulted in a number of modifications to the grenade. There was a demonstration of the darting gun with the old and new barrels, and with a replica of the penthrate grenade. The darting gun with a 3.5 fathom line and float attached is used as the primary killing method and could be fired more than once before the shoulder gun was used as the secondary weapon. These two weapons were the only ones used in the hunt.

Greenland introduced a number of papers providing the status for the Greenland Action Plan on Whale Hunting Methods, a report on improvements in Greenlandic whaling and an overview on the efficiency in the Greenlandic hunt of minke and fin whales in the years 1990-1998.

The USA reviewed information presented to the Commission in 1997 on weaponry used in the Makah whale hunt, and provided the Workshop with an update on research conducted since then. The efforts of the Makah tribe relative to their subsistence hunt of the gray whale were focused on the development of the rifle as a means of killing whales. In summary, the .50BMG was confirmed and improved as a suitable killing weapon to USC in the Makah tribal hunt and the .577 is also suitable and has the additional advantages of lighter weight and multiple shot capability.

The Russian Federation described the techniques used by Chukchi whalers for the gray whale catch. They take basically young whales in the coastal waters of the Chukchi Peninsula (up to 20km offshore) initially using 6-10 manual harpoons with attached buoys to slow animal movements. Then the kill is performed using darting guns (obtained as an humanitarian aid from Alaska), rifles and sometimes special spears. When using darting guns the time from first harpooning to death takes on average 30-40 minutes. Chukchi whalers do their best to reduce whaling time and animal suffering as much as possible and will continue these efforts in future. Questions on the number of bullets fired, and the USC of automatic guns, were raised but not discussed further.

St. Vincent and The Grenadines indicated that it would provide more detailed information on its hunt than appeared in a book on whaling in Bequia during the Commission meeting.

The Government of the Faroe Islands had for information purposes only provided the Workshop with material on killing methods and equipment in its pilot whale hunt. The UK produced a list of questions to the Faroe Islands with reference to this material and 1 Denmark stated that the questions and comments should be forwarded to the Faroe Islands Government.

9.1.1.3 EUTHANASIA OF STRANDED WHALES

New Zealand explained that sperm whale strandings have a high media profile, and there is a public expectation in New Zealand that live stranded sperm whales should be humanely euthanased if re-floating is not possible. After extensive trials of a number of weapons and projectiles, it was decided

to concentrate on a modified 14.5 X 114mm anti-aircraft round to develop the Sperm Whale Euthanasia Device (SWED).

In March 1997 the SWED was used to euthanase two large male sperm whales stranded on Farewell Spit, South Island. The first animal was killed immediately by a single shot. The second animal was thought to have been rendered insensible by the first shot but continued breathing and was shot a second time using the same target area. After 30 minutes, however, the animal resumed breathing. Failure to kill both whales emphasises the need to target the: brain <accurately if a humane death is to be achieved.

9.1.2 Assessment of methods

Norway introduced evidence from pathological findings on tissue and brain damage caused by the: detonation of the penthrate grenade to suggest that the IWC criterion of death based on immobility is incomplete and sometimes misleading. Conversely, New Zealand presented a paper which concluded that the current IWC criteria result in mean times to death values for whales being underestimated.

New Zealand also presented a study of the legislation in 53 countries to assess the legal requirements for slaughtering animals for meat consumption. The main conclusions were that stunning is usually required when the animals are killed in slaughterhouses; the majority of countries require the humane treatment of animals prior to and during slaughter; in many countries religious slaughter is exempt from stunning; and the requirements for humane slaughter apply to a wide range of species killed for meat consumption.

9.1.3 Times to death and evaluation

The Netherlands introduced a paper resulting from a meeting of experts held in Lelystad in March 1999. This dealt with the determination of the occurrence of irreversible unconsciousness in whales, as it has been considered that the IWC criteria for determining death are not valid and do not correspond to current scientific or clinical standards. It was suggested that the parameters which seem at present to be most promising for further evaluation and actual application are:

- (1) behaviour: frequency of breathing;
- (2) responses: blowhole-, corneal, pupillary- and pain responses.

After an extended discussion, the Chairman concluded that the Workshop agreed on the need to find better criteria based on better evidence.

9.1.4 Review and evaluation of relevant data

A paper from the UK reviewed recent data submitted to the IWC relating to the efficiency and humaneness of whale killing methods. Norwegian data indicated that in 1984-86, 45% of whales were killed immediately. There has been a gradual increase to 60% as training programmes have been implemented. Japanese data indicate that in 1983/84, 30% of whales were killed immediately and that there has been no improvement in this figure since. It was concluded that at least 40% of whales are not killed immediately in the Norwegian industry and in Japanese whaling this figure is 70%. Survival times for 50% of wounded whales is more than 6 minutes and some whales can survive for an hour or more. In discussion, it was suggested that the percentage of whales killed immediately in both the Japanese and Norwegian hunts would increase with better criteria for death in whales.

9.1.5 Revised Action Plan on whale killing methods

Delegations discussed a modified version tabled by the UK and New Zealand of the Revised Action Plan on Whale Killing Methods that was adopted at the previous Workshop in Dublin.

Denmark stated in relation to item D(9) in the Plan that Denmark does not recognise IWC competence on small cetaceans and would consequently not provide such information.

After extensive and comprehensive discussion on matters mainly of principle, the UK and New Zealand proposal on the Revised Action Plan was adopted with changes (Appendix 1).

9.1.6 Any other business

Norway proposed that scientific papers on technical improvements and killing methods such as those: currently presented to the Workshops on Whale Killing Methods could be submitted for publication to the new journal published by the IWC. So far the journal is only publishing papers within the field of interest of the Scientific Committee of the IWC.

The Netherlands questioned the added value of the new journal for publication of scientific papers relating to the Workshop topics and noted that journals already existed where such papers could be submitted.

The Chairman concluded that he could not see agreement from the floor and suggested that Norway may wish to explore this matter further with the Commission.

9.1.7 Commission discussion

In the Commission, Norway spoke of the new material submitted by the whaling nations and commended the improvements in the times to death and hunters' safety, as well as the New Zealand progress in killing stranded whales. To avoid the same questions being asked at each meeting it believed that delegates should have technical expertise in the subject. It commended the progress made in this work, but noted that suffering in animals is difficult to quantify. Because of the very strict criteria it used for death times, it believed that whale hunts are better than those for most large terrestrial animals.

New Zealand was pleased that Japan no longer uses the electric lance, but regretted the lack of information on the Dall's porpoise hunt. It noted that some 40-70% of whales are not killed instantly in the Norwegian and Japanese hunt; questioned the number of bullets used in the Greenland hunt, and thought the situation in the Russian Federation hunt requires attention. It will continue its own work on the euthanasia of stranded cetaceans.

The UK associated itself with these remarks, commended the progress achieved, but looked for more information on the aboriginal subsistence hunts. There still need to be improvements in the effectiveness and humaneness, and it was disappointed that the Workshop did not address small cetaceans, since white whales and narwhals are included in the Action Plan. It had concerns over the use of electric harpoons in the Dall's porpoise hunt, since the Berne Convention prohibits the use of electrical methods for killing wild animals.

Denmark mentioned that the members of the small Faroese administration had been occupied with other matters and so could not attend the meeting but had provided information.

Sweden supported the comments from the previous speakers in thanking the whaling nations, noted the repetitive arguments and spoke of the need for more data.

Brazil and the USA thought that humane killing is within the Commission's competence. The latter provided substantial information on Alaska bowhead and Makah whaling practices, but pointed out that it is difficult to get detailed data from aboriginal subsistence hunts.

Japan maintained that this subject is outside the IWC's competence, and it participated and provided data on a voluntary basis. It appreciated the cooperation with Norway, but noted that while the whaling nations collect the data as a courtesy to the IWC, they are often misused. It deplored the way that jurisdiction was extending to small cetaceans and remote environmental issues, and the subjective use of the word humane.

The Russian Federation explained that automatic guns are prohibited in its hunt, commented that it received technical assistance only from Japan, Norway and the AEWC; it did not have enough experienced whalers and so was arranging a training seminar.

The Netherlands noted that some progress had been made since the Dublin Workshop, but better criteria (such as cranial nerve reflexes) are needed for permanent insensibility since the present ones are not satisfactory. It regretted the lack of information on aboriginal subsistence hunts, commented on the difference between the Norwegian and Japanese percentages for immediate kills and asked for information on sea conditions.

The Solomon Islands spoke of the cultural differences and practices carried over generations which exist, regretted the imposition of values from others, and called for cooperation in the future and respect for the coastal communities. Dominica supported this statement, and reiterated its view that management of small cetaceans is outside IWC competence.

Following some further comments on technical details, the Commission then accepted the report of the Workshop, noting the comments made.

9.2 Name of the Working Group

There was considerable discussion at the SO¹ (1998) Annual Meeting on the name of the Humane Killing Working Group, with no consensus, and it was concluded that any decision should be taken at the plenary session of the 51st Meeting.

This year- Japan opposed the use in the name of the term 'Humane', which is subjective and cultural, and proposed instead 'Whale Killing'. France, Norway, Antigua and Barbuda and Denmark agreed.

The UK had some difficulty with this since it attached importance to the word and concepts of humaneness. This idea is not unique to one culture, reflecting a minimum of pain and suffering. English is the language of the Commission, but it would not insist if there was some acknowledgement of improvement. It suggested the name 'Working Group on Welfare Considerations of Whale Killing Methods'.

The USA viewed improvements as the ultimate goal, believing that the Commission has full competency as reflected in the 1992 Resolution and the Action Plan, and would consider the UK proposal. Australia and New Zealand had similar positions to the UK's, preferring to retain the name but they considered the alternative sensible. France also accepted the UK proposal.

Japan would not support this, nor St Lucia, who suggested 'Whale Harvesting Methods'. Denmark thought welfare was a very positive term and preferred 'Killing', as did Antigua and Barbuda, while St Vincent and The Grenadines thought

Information on killing methods, struck and lost animals and whether a female is lactating is also recorded for some animals.

- (2) *USA*: Information on date, species, position, length, sex, killing method and numbers struck and lost is collected for 80-100% of the catch depending on the item. Other biological information is recorded for about 60% of animals.

Although Norway has not submitted a Checklist, it has submitted the required information to the Secretariat as noted in the Scientific Committee report.

10.1.3.3 SUBMISSION OF NATIONAL LAWS AND REGULATIONS

A summary of national legislation supplied to the Commission was prepared by the Secretariat.

10.1.3.4 OTHER

The UK reminded Japan that last year Japan had been requested to provide further information on the gray whale whose upper body had been found with several harpoon heads in Hokkaido, Japan in 1996. Japan explained that it is the standing policy of the Government of Japan to take strict measures against illegal activities and it was willing to receive any constructive suggestions from the Contracting Governments. However, it believed that the reports of this issue at the 49th Annual Meeting had been sufficient for the discussion to have been concluded.

Australia asked whether the take of a Bryde's whale during the JARPN research survey in 1998 should be considered in the Sub-Committee on Infractions. Japan noted that the issue was inappropriate to be discussed in this Sub-Committee since the right to conduct scientific research is granted as a sovereign right of the Contracting Government in Article VIII of the Convention.

10.2 Action arising

The Commission took note of the matters contained in the report of the Infractions Sub-Committee.

11. ABORIGINAL SUBSISTENCE WHALING

11.1 Aboriginal subsistence whaling scheme

11.1.1 Report of Aboriginal Subsistence Whaling Sub-Committee

The Aboriginal Subsistence Whaling Sub-Committee met with Mr Stein Ove (Norway) in the Chair and delegates from 23 Contracting Governments attending.

Japan objected to the admission of two NGO observers, as in the Infractions Sub-Committee (Item 10 above), but all other observers were admitted.

The Chairman of the Scientific Committee's Standing Working Group (SWG) on the Development of the Aboriginal Subsistence Whaling Management Procedure (AWMP), Mr Greg Donovan (Secretariat), presented its report.

A major feature of the SWG's discussions this year was how to make as rapid progress as possible in the light of the agreement last year that it is possible to provide the Commission with components of an AWMP as soon as they are available. This means that *Strike Limit Algorithms* (SLAs) for bowhead and gray whales will be able to be developed before those for other species. As in previous years, a number of scientific issues related to simulation trials were looked at.

to the advice sought from the

the development process, the SWG has been able to make SLAs

trial structure by which they can be evaluated against Commission's objectives. Those addressed this year included: catch variability; block quotas; short-term need;

With regard to the level of progress and when this work might be finished, the aim is to ensure as rapid progress as the for been developed, but this by nature must be somewhat tentative as the development process is an iterative one and it is not SLAs in the trials.

11.1.1.1 FUTURE WORK PLAN

With respect to the Bering-Chukchi-Beaulbrt Seas stock of bowhead whales both a 'faster' and 'slower' timetable have been provided to illustrate the tentative nature of the process. With the 'faster' timetable, a recommendation should be ready to be presented to the Commission at the 2002 meeting. The present catch limits for bowhead whales are set up to and including the 2002 season. It was emphasised that the timetable will be lengthened considerably if trials.

The eastern stock of gray whales has not been looked at in any detail yet but given the similarities between this and the bowhead whale, at least with respect to information available, it is expected that this can be developed in parallel.

recommendation will be presented to the 2002 Commission meeting.

Greenland fisheries for minke and fin whales it would be extremely difficult, if not impossible, for development of an SLA that will satisfy all the Commission's objectives for this fishery. Last year the Commission had accepted the recommendation of the need to develop a cooperative research programme with Greenlandic scientists to advance developing this programme, and the feasibility of a new approach is being require field of sampling gun and, assuming success with this, it will large-scale programme as well as aerial surveys. This will have financial implications for future number of practical and theoretical issues for this multi-species fishery and it looks likely to be at least 2006 before management advice and recommendations will be able to be provided.

St Vincent and The Grenadines humpback whales have not yet been looked at in any detail. Both the major review of North Atlantic humpback whales to be undertaken at the 2001 meeting and proposed research work in the eastern Caribbean be important this work. The question of stock identity and the relationship of these whales to those of the wider western North Atlantic will be very important to this work and the Scientific Committee has recommended that at least tissue samples are obtained from any animals taken under this quota.

Some general matters regarding progress were outlined, including issues relating to computing and the dependence of the speed with which the work can be done on having appropriate software as soon as possible; the importance of

intersessional meetings and workshops to the development process; and the general scientific aspects of the scheme. The first two of these points have particular financial implications and, with respect to the third, a discussion paper will be produced for next year's meeting to promote dialogue with the Commission.

The USA expressed satisfaction at the progress made and said that it looked forward to the results of the work at coming meetings. Denmark expressed the willingness of Denmark/Greenland to cooperate with the IWC and its Scientific Committee but underlined the situation with resources in Greenland and the need for assistance, including financial assistance, from the IWC.

The Aboriginal Subsistence Whaling Sub-Committee agreed to forward this report to the Commission.

11.1.2 Action arising

The Commission noted the comments in the report.

11.2 Review of aboriginal subsistence whaling catch limits

11.2.1 Report of Aboriginal Subsistence Whaling Sub-Committee

11.2.1.1 BERING-CHUKCHI-BEAUFORT SEAS STOCK OF BOWHEAD WHALES

The Scientific Committee agreed that there is no reason to change the management advice given last year that it is very likely that a catch limit of 102 whales or less would be consistent with the requirements of the Schedule.

11.2.1.2 NORTH PACIFIC EASTERN STOCK 01' GRAY WHALES

The Scientific Committee agreed that it has no reason to change the advice given in 1997 that a take of up to 482 whales per year is sustainable, and is likely to allow the population to stabilise above *MSYL*.

Given the level of interest, the USA offered to provide some preliminary information on the Makah hunt, noting, that it would not normally provide such information at this stage. It advised that the hunt began on 17 May when the Makah struck and landed a whale. The harpoon was thrown from a canoe, it was attached to a float, the whale dived, and was then pursued by a motorised chase boat. The kill was then completed by use of a .577 calibre rifle, with two of four shots striking the whale. The total incident took eight minutes.

11.2.1.3 NORTH ATLANTIC WEST GREENLAND STOCK OF MINKE WHALES

The Scientific Committee noted that it has never been able to provide satisfactory scientific advice on either fin or minke whales off Greenland. It strongly recommended the establishment of a research programme for fin and minke whales off Greenland and endorsed the plan for such a programme outlined in its report.

Sweden endorsed the recommendation referred to by the Scientific Committee concerning the feasibility study, and in agreeing with Sweden, the UK noted that such a decision is likely to have financial consequences in future years, which members should bear in mind, and indicated its readiness to support such a study.

The Aboriginal Subsistence Whaling Sub-Committee then endorsed the proposal of the Scientific Committee for the feasibility study proposed in its report.

11.2.1.4 NORTH ATLANTIC HUMPBACK WHALES

The Scientific Committee repeated its advice from the 1997 meeting that a catch of up to three whales annually is unlikely to harm this stock. It also drew attention to the fact that the comprehensive stock assessment for North Atlantic humpback whales, previously agreed to take place in 2000, would now not take place until 2001. The Commission may wish to look at this when considering the Scientific Committee's Work Plan.

St Vincent and The Grenadines requested a renewal of its quota of two humpback whales a year. It stressed the need for the continuance of this small quota and reiterated its request of previous years that this be for a three year period.

There followed an extensive debate, covering the issues of the possibility of continued whaling after the retirement of the original whaler; the killing methods used; the possibility that a calf and its mother may be taken; the importance of a documented needs statement; the social, subsistence and cultural aspects; the impact of the small catch on the stock estimated to number 10,600 animals; and the balanced and multiple use of resources in the Caribbean.

11.2.2 Action arising

11.2.2.1 RECOMMENDATIONS FROM THE ABORIGINAL SUBSISTENCE WHALING SUB-COMMITTEE

It was agreed that the Sub-Committee's report of the above discussions would be forwarded to the Commission. In particular, the Chairman of the Sub-Committee noted that while many delegations had expressed support for the St Vincent and The Grenadines request, there was no consensus, including on the question of need. The various points of view were reflected in the Sub-Committee's report.

In the Commission, St Vincent and The Grenadines repeated the request it has made since 198X for a quota of two whales for each of the next three years. The nutritional need had been accepted in 1994 and 1996 and continues. It is collecting tissue samples and providing more information. It maintained that no infractions had occurred, despite the concern over the small whale taken in 199X. This was based on its belief that paragraph 14 of the Schedule is not applicable, and refers only to commercial whaling, and that lactating is equivalent to suckling.

It proposed that the Scientific Committee should be instructed to consider the effect on the stock of taking calves, small whales and lactating females. It wondered what is the problem of taking two whales from a stock of 10,600, which is subject to annual review, when a catch of three whales would not cause harm.

Although it was not obliged to answer questions raised by the UK on welfare, it did state that the times to death are 20-30 minutes, a bomb lance is not used, only two whales had been lost out of 12 struck since 1989, one or two attempts are needed with a steel-tipped lance to kill the whale, there were six men in each of the two boats used in 1998 and 1999, and a motorised boat is used only to tow the whale after the hunt. It also stated that the larger of two whales together is always struck first.

St Vincent and The Grenadines was aware of the concerns raised by the false reports, and discussions had been initiated with technical people. It noted that it can expect to kill more whales with improved efficiency, and the demand for whale meat had increased because of the publicity.

Ireland proposed an amendment to the suggested Schedule text, by adding to paragraph 13(b)(4):

It is forbidden to strike, take or kill calves or any humpback whale accompanied by a calf.

Although Ireland does not take whales and has declared its waters a sanctuary, it respected other people's cultures and traditions.

It asked for a definition of a calf, which the Chairman said was an animal of less than 8m in length. The Scientific Committee should review this next year.

Although St Vincent and The Grenadines undertook to cooperate, the Netherlands still had concerns over the needs statement, possible violation of paragraph 14, when the whaling would stop, and wished for reassurance on these matters. The matter was then adjourned for further negotiations outside the meeting, following which the Chairman of the Commission reported that consensus had been reached on the Schedule amendment proposed by St Vincent and The Grenadines to delete the dates '1996/97 to 1998/99' and replace with '2000 to 2002' and with the additional sentence put forward by Ireland.

In reaching this consensus, the Commission took note of:

- (1) its decision that a humpback whale calf is an animal less than 8m in length, subject to review by the Scientific Committee next year;
- (2) commitments of the Government of St Vincent and The Grenadines that it will:
 - (i) review and improve hunting and killing methods;
 - (ii) ensure that the hunt is properly regulated;
 - (iii) ensure cooperation in research related to this hunt; and
 - (iv) submit a detailed needs statement when the quota is next considered for renewal.

Australia said its reservations remain, but it welcomed the commitments and regulation. Denmark expressed satisfaction on reaching agreement. New Zealand associated itself with these remarks. The Netherlands still had concerns over the way the hunt is conducted and will watch future conduct, while the UK welcomed the changes concerning calves but still had reservations on need.

The USA, as an aboriginal subsistence whaling nation, supported native groups in other countries. It had been troubled in the past but was somewhat encouraged by the amendment and definition of a calf; targeting calves and accompanying whales is unacceptable. Monaco thought that clarification on excluding the killing of mothers and calves is essential.

Japan welcomed the agreement; this non-issue had taken too long, since people commonly eat small chickens, lamb and veal.

The Solomon Islands, and Chile congratulated the Chairman for his guidance, believing that understanding by countries is the way to go forward. St Vincent and The Grenadines thanked everyone.

11.3 Catches by non-member nations

11.3.1 Report of Aboriginal Subsistence Whaling Sub-Committee

The Scientific Committee considered bowhead whales other than the Bering-Chukchi-Beaufort Seas stock and reported that a bowhead whale was taken at Pangmirtung, eastern Baffin Island, in the summer of 1998. The Scientific Committee reiterated its advice that given the apparent interest in continuing harvests from the Baffin Bay-Davis Strait and Hudson Bay stocks that were depleted by commercial whaling, additional knowledge of their status is crucially needed.

12. COMPREHENSIVE ASSESSMENT OF WHALE STOCKS

12.1 Revised Management Procedure

12.1.1 Report of the Scientific Committee

12.1.1.1 COMPLETION OF THE CLA PROGRAM REVISION AND TUNING

The work needed to re-code the CLA program has continued. The new program will be applied to selected input data and once the testing is successfully completed the Secretariat will use the program to determine a more accurate value for the tuning parameter specified by the IWC.

12.1.1.2 ABUNDANCE ESTIMATION

An intersessional Working Group was established last year to review abundance estimation projects of interest to the IWC, and to document and enlarge the project to evaluate abundance estimators that incorporate $g(0)$ and heterogeneities. This work is continuing and there will be a report to next year's meeting.

12.1.1.3 NORTH PACIFIC MINKE WHALE TRIALS

REVIEW RESULTS OF IMPLEMENTATION SIMULATION TRIALS

Last year, the Scientific Committee revised the *Implementation Simulation Trials* for North Pacific minke whales. Trials were completed for the management option in which the *Small Areas* were equal to the sub-areas, and the RMP is applied separately to each *Small Area*. The Scientific Committee expressed appreciation to Mrs Allison on completing what turned out to be a much larger task than expected.

Results from trials for two options regarding the level of Japanese incidental take were presented. The total catch for a sub-area was taken to be the catch limit set by the RMP or the level of incidental catch, whichever was the greater, as specified by the Commission.

The results of all *Implementation Simulation Trials* considered suggest that irrespective of how the RMP would be used to manage commercial whaling, the J stock, which is found predominantly in the Sea of Japan, the Yellow Sea and the East China Sea, is likely to decline markedly because of the incidental catches in that area. Although the primary focus of the trials is to examine performance relative to the O stock, the Scientific Committee expressed its concern at the implications of the result for the status of this stock.

The Scientific Committee noted that the data for some sub-areas used to condition the trials (a CPUE series and some minimum estimates of abundance) are sparse and of uncertain reliability.

The Scientific Committee noted that catch limits other than zero are set for some of the *Small Areas* in which animals from the J stock are occasionally found, and proposed that a new output statistic be defined to determine the impact of management using the RMP on the J stock. It also considered which of the trials specified last year could be omitted to obtain a final set, noting that the primary purpose of the trials was to examine the application of the RMP to the O stock.

SIGHTINGS SURVEYS

The Scientific Committee received a report on a sightings survey conducted last year in the Okhotsk Sea, and the research plan for a repeat sighting survey in the Okhotsk Sea in August-September 1999. The Scientific Committee reiterated its recommendation from last year's meeting that methods in addition to visual observations (e.g. VHF telemetry) be used to determine dive times, and urged that this work take place as a matter of priority.

8. WHALE KILLING METHODS AND ASSOCIATED WELFARE ISSUES

8.1 Report of the Working Group on Whale Killing Methods and Associated Welfare Issues

Professor Frederic Briand (Monaco) chaired the Working Group on Whale Killing Methods and Associated Welfare Issues. The Working Group met on 30th June and was attended by delegates from 21 Contracting Governments. In the Commission, Professor Briand summarised the Working Group's discussions as provided below.

At the start of the Working Group meeting, Japan had requested the withdrawal of two documents submitted by the UK concerning small cetaceans. The UK declined to do so, adding that it would also like to present a video film referred to in one of the documents relating to a bottlenose dolphin drive hunt that took place in October 1999 in Futo Port. In support of Japan, Norway stated that the document was of insufficient scientific standard. The USA supported the UK, believing that the document discussed matters of clear concern.

The Chairman ruled that the document could be tabled, but not discussed in the Working Group. This would reflect the fact that while the IWC has no competence in regulating killing methods of small cetaceans, it has a role to play as a forum for receiving and exchanging relevant information on such matters. He also ruled that the video film could only be shown outside the meeting room. New Zealand stated its belief that the IWC was competent on the regulation of killing of small cetaceans.

Japan insisted that the documents were outside of the mandate of the Working Group as they dealt with small cetaceans, that they were neither technical nor scientific, and that the video should not be shown in the building. The Chairman's ruling was upheld and Japan left the meeting, stating that the Chairman's decision was against the past practice of the Working Group.

The Working Group adopted a proposal from New Zealand for text to use as its Terms of Reference:

'The Working Group is established to review information and documentation available with a view to advise the Commission on whale killing methods and associated welfare issues'.

8.1.1 Information on improving the humaneness of aboriginal subsistence whaling

Documents were provided in reference to IWC Resolution 1997-1 on improving the humaneness of aboriginal subsistence whaling.

Denmark presented information on the Greenland Action Plan on whale hunting methods. These contained information on recent overhaul programmes and training courses for the maintenance of harpoon cannons, and on earlier

seminars and courses designed to improve hunting methods and gears so as to reduce time to death.

The USA presented a report on the 1999 Makah Tribe gray whale subsistence hunt, which resulted in one whale being struck and landed. The necropsy of the whale conducted by the US National Marine Fisheries Service concluded that the four shots fired were likely to have caused instantaneous loss of consciousness with death following after 8 minutes.

The USA also provided information on the latest progress of the Weapons Improvement Program on bowhead hunting efficiency and methods in the Alaskan Arctic. A new darting gun barrel has been developed to ensure the penetration of the bomb inside the whale and so achieve instantaneous death. Preliminary data indicate that this new darting gun barrel will also make the hunt safer for the whalers.

8.1.2 Data on whales killed

To meet the request of IWC Resolution 1999 encouraging countries to report on numbers of whales killed by various methods, number and proportion killed instantaneously, etc., Denmark gave detailed information regarding the 1999 Greenland hunt of minke whales with statistics on most parameters. Information on time to death was missing however, due to the lack of veterinarians available.

The Russian Federation presented a brief report on the gray and bowhead whale hunt carried out in 1999 by the indigenous people of the Chukotkan Autonomous Region. All whaling is carried out under national inspection. Sweden asked how time to death related to the different weapons used, and expressed concern about the large number of shots needed to kill the whales. Norway commented that the hunt is conducted from very small boats and the gray whales are aggressive, making it dangerous for the hunters to approach too closely to the whales. The rifles and ammunition being used for the hunt appeared to be inadequate based on a Norwegian expert's observations of the hunt and his post-mortem examination of two whale skulls; larger rifles and full-jacketed, round-nosed ammunition would be more effective. The Russian Federation indicated that it would provide the required information next year. It hopes to improve aboriginal whaling in Russia with a greater number of darting guns, new boats with better motors, more fuel and modern equipment.

Norway reported on its 1999 traditional minke whale hunt and provided the required data on whales killed. Two types of penthrite grenades had been used: the 'old' (current) type and a new penthrite grenade developed in Norway over the last three years. The results showed a significant increase in the ratio of instantaneous death from 58%, using the "old" grenade, to 72% using the

new penthrite grenade, and reduced the survival times for animals not killed instantaneously. Sweden expressed its satisfaction with the report.

The USA summarised statistical data on 1999 hunts on gray and bowhead whales. In reference to the Makah hunt, Sweden asked how it was possible to target only migrating whales. USA responded that both area and seasonal restrictions apply to the hunt. In addition scientists fly over the area for migrating whales and advise the tribe on the basis of their observations.

The Working Group Chairman noted that, in view of the absence of Japan, a document on whale killing methods used in JARPA would not be discussed, but simply tabled. Norway expressed its regret that the Japanese document could not be discussed and made a statement regretting that the Working Group could not accommodate the concerns expressed by Japan.

8.1.3 Other matters

The UK presented a document on small cetacean killing methods. It believed that through this Working Group, the IWC could provide help and advice to coastal states on small cetaceans. This led to an exchange of views by several delegations as to the competence or otherwise of the IWC to discuss and manage small cetaceans. No consensus was reached.

8.2 Commission discussions

The USA and Denmark referred to difficulties inherent in gathering information from aboriginal substance hunts for small cetaceans.

Japan commented that it has taken many years to develop its new explosive grenade and that this technology is now appreciated and widely used. It reported that the time to death in the Antarctic has been shortened to 2 minutes. It contrasted this with the much longer time to death in aboriginal subsistence hunts as a result of the older technology used by them. It also commented that not surprisingly, time to death for hunted wild animals are generally 5-10 times longer than times to death in slaughter houses, where the animals are captive and immobile. It noted that times to death in Japanese whaling are shorter than those for wild deer in European and American hunts. Finally, Japan reiterated its view that small cetaceans are outside the scope of the Convention and that it did not think it appropriate that the video of the porpoise drive be shown or the accompanying document tabled since they were emotive and not scientific.

The UK emphasised the great importance it attached to issues related to whale killing and animal welfare and commented that it still had concerns about the Norwegian data on whales not killed instantly. It thought it important that issues of welfare are considered for all cetaceans and hoped that the differences on competence could be

put aside to address the cruelty involved in small cetacean hunts around the world. It proposed that a database on small cetacean hunts be established to include information on methods, national legislation, times to death and struck and lost rates. The UK reported that it was also investigating the possibility of establishing a Workshop on Small Cetacean Killing Methods. These two activities would not necessarily be within the IWC.

The Netherlands supported the UK intervention and the proposal for a database on small cetacean hunts. It encouraged the monitoring of hunting information by the Working Group, regretted that a situation arose in this year's Working Group that made it impossible to consider all the information available, and believed that the same criteria should apply in aboriginal subsistence hunts. The Netherlands added that it had been shocked by the video of the Japanese dolphin drive.

Norway also regretted that the Working Group had been unable to accommodate Japan's concerns. It spoke of the progress achieved over the past ten years in improving times to death and the need for cooperation. It pointed out that many of the 30% of minke whales hit by harpoons but recorded as not killed instantly in its hunt are most likely either already dead and only show some movements after death or are unconscious, so this is a minimum figure.

8.3 Action arising

The Commission noted the Report and adopted the proposed Terms of Reference for the Working Group (i.e. 'The Working Group is established to review information and documentation available with a view to advise the Commission on whale killing methods and associated welfare issues').

9. INFRACTIONS, 1999 SEASON

9.1 Report of Infractions Sub-committee

The Chair of the Infractions Sub-committee, Mr Henrik Fischer (Denmark) summarised their discussions for the Commission. Delegates from 20 Contracting Governments attended the Sub-committee meeting. As in previous years, despite differences of opinion as to whether the item concerning stockpiles of whale products and trade questions is within the scope of the Convention, it was agreed that an exchange of views was useful.

9.1.1 Infractions reports from Contracting Governments

Infractions reports for 1999 were received from Denmark, St. Vincent and The Grenadines, the USA and the Russian Federation.

Most of the discussion concerned the taking of humpback whales in St. Vincent and The Grenadines. The UK asked whether last year's take of a humpback whale by St. Vincent and the Grenadines was being reported as an infraction. St.

Vincent and the Grenadines confirmed that it did not believe the take constituted an infraction and had not reported it as such; the male taken was under 8m but there was no milk in its stomach. The Netherlands recalled the agreement of the Scientific Committee last year that there is a high probability that any humpback whale less than 8m in the breeding area during the winter season is a calf, and that therefore this take should be recorded as an infraction.

The Chairnan noted that the Sub-committee was in the same position as last year with differing views on whether or not the take by St. Vincent and The Grenadines should be recorded as an infraction. He indicated that he did not wish to have a repetition of last year's debate and reminded the Sub-committee that the Schedule had been amended last year so that it is now specifically forbidden to take calves in this hunt.

Australia, the USA, Monaco and Austria, noted for the record that in their view last year's take constituted an infraction. Austria further noted that it expected that at next year's meeting, the 2000 season's take by St. Vincent and The Grenadines would be reported as an infraction. Furthermore, Austria, supported by the UK, also noted that St. Vincent and the Grenadines had reportedly taken a Bryde's whale this year and that if this was true it expected this to be reported as an infraction next year. The Sub-committee Chairman reminded the Sub-committee that discussions of infractions for the 2000 season should take place next year.

Norway and Japan did not share the view that last year's take by St. Vincent and The Grenadines was an infraction for the legal reasons given in last year's meeting off the Infractions Sub-committee.

The Sub-committee Chairnan took note of the different points of view on this subject and referred them to the Plenary.

In response to a question from the UK, the Russian Federation confirmed that there had been no infractions recorded during the 1999 aboriginal subsistence hunt.

New Zealand, Monaco and the UK thanked Denmark for the helpful paper submitted on quota monitoring of minke and fin whale hunting in Greenland. New Zealand asked whether a whale, initially thought to be a fin whale but subsequently shown by DNA analysis to have been a sei whale, had been counted against the 1998 quota and whether it should be recorded as an unintentional infraction. It believed this incident showed the importance of DNA-based identification techniques, a view shared by Monaco. Denmark responded that the sei whale had been counted against the fin and/or minke whale quota for 1998 since the hunters had been unaware that they had caught a sei whale (which is very rare in Greenland

waters). It did not believe that this constituted an infraction as it was clearly unintentional.

The UK believed that the take of the sei whale should be recorded as an infraction, albeit an unintentional one. Austria and Japan supported the UK's position. In response to a question, the Sub-committee Chairman noted that such accidental takes are recorded as infractions but that normally no penalties are imposed by national governments. The Secretariat undertook to examine the archives and provide the Sub-committee with examples of precedents for this at next year's meeting.

9.1.2 Reports from Contracting Governments on availability, sources and trade in whale products

No reports relating to Resolutions 1994-7, 1995-6, 1996-3, 1997-2 and 1998-8 had been received by the Secretariat.

9.1.3 Surveillance of whaling operations

The Infractions Reports submitted by the USA and St. Vincent and The Grenadines stated that 100% of their catches were under direct national inspection. Denmark reported that the IWC catch limits for minke and fin whales were not violated for Greenland. In the Sub-committee, Australia queried the statement from St. Vincent and the Grenadines and asked how it correlated to the paper submitted to the Aboriginal Subsistence Sub-committee by St. Vincent and The Grenadines that stated that there were no national regulations for this hunt. The representative of St. Vincent and The Grenadines responded that he and others were fully engaged, as required, on a full-time basis during the whaling season taking readings and samples where possible, and that he personally had inspected this whale. The Sub-committee Chairman noted the opinion of St. Vincent and the Grenadines that this hunt is under direct national inspection.

9.1.4 Checklists of information required or requested under Section VI of the Schedule

The available information supplied in the Checklists is summarised below:

Denmark: Information on date, position, species, length, sex and whether a foetus is present is collected for between 85-100% of the catch, depending on the item. Information on killing methods, struck and lost animals and whether a female is lactating is also recorded for some animals.

USA: Information on date, species, position, length, sex, killing method and numbers struck and lost is collected for 80-100% of the catch depending on the item. Other biological information is recorded for about 60% of animals.

St. Vincent and The Grenadines: Information on date, time, position, species, length, sex, and whether lactating is collected.

Russian Federation: Information on date, species, position, length, sex and hunting methods. is collected.

Norway did not submit a Checklist, but submitted the required information to the Secretariat as noted in the Scientific Committee report (IWC/52/4).

9.1.5 Submission of national laws and regulations

A summary of national legislation supplied to the Commission was prepared by the Secretariat.

9.1.6 Other matters

New Zealand raised the matter of the gray whale that was washed up on the coast of Hokkaido in 1996. It had obtained a DNA profile from a gray whale and asked Japan if it was willing to release material it held from the whale found in 1996 for comparison. Japan restated its position regarding competence for domestic markets and trade matters but nevertheless said it was willing to exchange scientific information outside the context of this meeting. Japan further stated that in matters relevant to this Sub-committee with respect to Japanese authorities' investigations regarding this gray whale, reports had been provided by Japan in timely fashion to several previous Sub-committee meetings.

New Zealand thanked Japan for its offer but pointed out that in its opinion this was not a trade matter but a possible infraction and one that could highlight the benefits of DNA identification techniques.

9.2 Commission discussions and action arising

In the Commission, New Zealand reminded the meeting that under paragraph 31 of the Schedule, Contracting Governments are required to provide copies of all their official laws and regulations concerning whaling to the Commission, and commented on whether failure to do so should be considered an infraction. It pointed out that neither the Convention or the Schedule provides guidance in this area. It therefore proposed that the Infractions Sub-committee be asked to determine the extent to which a failure to provide information about laws or procedures, or a failure to enact them after giving an undertaking to do so, might be considered an infraction. The Commission agreed to include this issue on the agenda of next year's meeting of the Infractions Sub-committee.

Japan referred to the harsh criticism made during the Sub-committee meeting against St. Vincent and The Grenadines relating to whether the taking of a cow accompanied by a calf constitutes an infraction. It considered that the decision made last year that prohibited this was probably a wrong decision, and drew attention to the Scientific Committee report in which it was predicted that the taking of a cow and a calf would have less impact on the stock than the taking of two cows. Japan

therefore believed that with respect to aboriginal subsistence whaling, the taking of a cow and a calf should not constitute an infraction. This position was supported by Norway.

In response, the UK wished to put on record its view that the taking of the cow and calf last year was an infraction, and that if a rule is made it should be observed and any breach considered an infraction. It added that there might be scope to consider the appropriateness of the rule, but that this should be done under another agenda item. The Netherlands made similar comments.

The USA associated itself with the UK. 'The USA also noted the discussion regarding the DNA profile of the gray whale washed up on the coast of Hokkaido in 1996. The USA disagreed with Japan's view that this is a trade matter – rather that this is an attempt to determine whether or not an infraction has occurred, an important point given the endangered nature of this gray whale stock. It was pleased at Japan's willingness to exchange information. New Zealand supported the USA comments. In response, Japan indicated that they are willing to co-operate with respect to the market information and that if New Zealand returned the information/material they had taken out of Japan, they would be happy to analyse it.

The Commission noted the report of the Infractions Sub-committee.

10. ABORIGINAL SUBSISTENCE WHALING

The Aboriginal Subsistence Whaling Sub-committee met under the Chairmanship of Mr Stein Owe (Norway) who summarised their report to the Commission. Delegates from 25 Contracting Governments attended the meeting. Sub-committee discussions addressed three main areas, i.e. progress in developing an Aboriginal Whaling Management Procedure (aboriginal subsistence whaling scheme), review of aboriginal subsistence whaling catch limits, and catches by non-member nations and other business. Highlights from the report of the Sub-committee and discussions and decisions within the Commission are provided below.

10.1 Aboriginal subsistence whaling scheme

10.1.1 Report of Aboriginal Subsistence Whaling Sub-committee

During the Sub-committee meeting, the Chair of the Scientific Committee's Standing Working Group on the Development of an Aboriginal Whaling Management Procedure (hereafter called the Standing Working Group) reported that good progress had been made during the last year in implementing the work plan adopted in 1999 and that the Standing Working Group is investigating a number of potential strike limit algorithms (SLAs) for the Bering-Chukchi-Beaufort Sea stock of bowhead whales. Discussions have begun on how

to evaluate competing SLAs and choose one for presentation to the Commission. For the eastern North Pacific stock of gray whales no SLA was suggested for this year's meeting but it may be possible to modify the SLA, being adopted for the bowhead whales for the gray whale. With respect to bowhead whales, the Standing Working Group considered that following a faster timetable, they should be able to recommend an SLA at the 2002 Meeting. This will, however, involve considerable work and an intersessional workshop will be essential.

With respect to the Greenland fisheries for minke and fin whales, the Standing Working Group Chair reiterated that with the current data it will be very difficult, if not impossible, to develop an SLA that will address all of the Commission's objectives. Attention was drawn to the Greenlandic Research Programme developed by the Committee. Results from this will feed into the work of several teams of developers in an iterative manner. However, the Standing Working Group Chair noted that for the Greenland fisheries, it is likely to be 2006-2007 before the Group may be able to develop a suitable SLA.

One issue that required further discussion was the treatment of unused strikes or carryovers. An example was provided of how this might be accomplished and in particular the Chair of the Standing Working Group sought advice as to whether this was a generally appropriate way to handle the issue and, if so, specific advice on what the length of the block should be and what percentage value is suitable to allow for inter-annual variation in catches. A small working group chaired by Chairman of the Standing Working Group met separately to discuss this issue. Participants at this meeting were the UK, the Netherlands, Denmark, the USA and the Russian Federation. The latter delegations contained members familiar with aboriginal subsistence whaling operations. The small working group agreed that blocks of five years with an inter-annual variation of fifty per cent were satisfactory in terms of allowing for the likely variability in hunting conditions. It therefore agreed that these values are appropriate for use in trials. It was recognised that this does not commit the Commission to these values in any final aboriginal whaling management procedure.

10.1.2 Commission discussions and decisions

The Commission accepted the report from the Sub-committee without comment and endorsed the views of the small working group with respect to block quotas and inter-annual catch variation.

10.2 Review of aboriginal subsistence whaling catch limits

10.2.1 Report of Aboriginal Subsistence Whaling Sub-committee

The Chair of the Scientific Committee reported that the Scientific Committee had no reason to change the management advice given previously for any of the aboriginal subsistence whaling catch limits.

10.2.1.1 IBERING-CHUKCHI-BEAUFORT SEAS STOCK OF BOWHEAD WHALES

The Scientific Committee had noted that the catch limit for this stock is to be reviewed in 2002 and had recommended that a full census be undertaken in 2001. In 1999, 48 whales had been struck, with 43 landed. These figures included one whale struck and landed by the Russian Federation. The figures for the monitored USA hunt (47 whales struck with 42 landed) give an efficiency factor of 0.89, the highest recorded. The Sub-committee noted these figures and its Chair congratulated the USA on improvements in efficiency in its hunt.

10.2.1.2 NORTH PACIFIC EASTERN STOCK OF GRAY WHALES

In 1999, 124 whales were struck, with 122 landed. These figures included one whale taken by the Makah (USA) with the rest being taken by the Russian Federation. The Scientific Committee had noted recent information on increases in the number of stranded animals but was unable to say whether this might be related to the population nearing its carrying capacity, an El Nino effect on food sources, or some other cause. The USA is conducting research on this issue and the Scientific Committee will carry out a new assessment of the stock in 2002, a year earlier than previously planned.

In a statement by the Russian Federation, the importance of whales for hunting and of their use as a traditional food was stressed. It also stated its desire to reduce time to death in whaling operations and expressed its appreciation to the USA, Japan and Norway for the help and support they had provided. It reported that since last year, more whales are being found that smell badly and are unfit for human consumption. It asked that ten such whales from the 1999 hunt be given a special status and excluded from the catch limit. Its primary interest in raising the matter was to draw the attention of the Sub-committee to this issue and provide notice that if the full number of whales allowed are taken in the remaining years of the five year quota, this may be problematic in terms of the total allocated catch (620 whales) in the final year of the period (2002). The Russian Federation also considered that the Scientific Committee should conduct research on these whales. In the longer term it would also like the formula for calculating catch limits changed so that it provides for adjustment in cases where whales caught are not suitable for human consumption.

The Sub-committee recommended that the Commission request the Scientific Committee to study the problem of contaminated gray whales.

10.2.1.3 GREENLAND FISHERY FOR MINKE AND FIN WHALES

A total of 165 minke whales were landed in West Greenland with five struck and lost. Fourteen minke whales were landed in East Greenland. Seven fin whales were landed in West Greenland, with two struck and lost. As in past years, the Scientific Committee was not able to give management advice on either fin or minke whales off Greenland. It strongly recommended the establishment of the research programme described in its report so that in future years it may be in a position to provide adequate management advice.

10.2.1.4 NORTH ATLANTIC HUMPBACK WHALES

The Scientific Committee reiterated its view that there is a high probability that any humpback whale of less than 8m in length present in the breeding area during the winter season is a calf. It had received catch information concerning two whales, a large female and a male calf, and reiterated its view that a catch of up to three whales taken annually would be unlikely to harm this stock. St. Vincent and the Grenadines and St. Lucia had both conducted surveys in their waters in addition to a larger multinational survey of the Eastern Caribbean. The Scientific Committee hoped that the survey results and the comprehensive assessment planned for 2001 will provide better data than have been available in the past. Further research that would provide data on the fine-scale distribution by sex in the area of the subsistence hunt would be relevant to considerations of the effects of regulations on the hunt.

Within the Sub-committee, the USA noted that although St. Vincent and The Grenadines had been involved in research, it had refused the necessary permit for a research programme endorsed by the Scientific Committee to survey in its waters. The USA considered that in refusing this permit, St. Vincent and The Grenadines did not fully comply with its undertaking to co-operate in research given in 1999 when its catch limit was renewed. St. Vincent and The Grenadines responded that it is a sovereign state and as such reserved the right to issue or refuse permits and that it has no obligation to automatically sanction any research proposal. It noted that in the research programme referred to by the USA, only two places had been allocated on the research vessel for local scientists. It added that it would support any programme where its national scientists can benefit through training and analysis of data obtained. It had therefore chosen to participate in a programme operated under a trust fund managed by FAO in Rome that included training programmes.

In response to a question from Australia concerning the commitment made in 1999 to ensure proper regulation of the hunt, St. Vincent and The

Grenadines said that the development of legislation should not be rushed and more time was needed to produce a package of regulations under its Fisheries Act. A number of delegations expressed concern that regulations were not yet in place and that this may have a bearing on their agreement to renewal of the humpback quota in 2002. The same delegations also expressed concern that a humpback calf had been taken again this year in contravention of the Schedule. St. Vincent and the Grenadines requested that any discussion of this year's catch cease immediately since it had not submitted its report. It drew attention to the note in the Scientific Committee report stating that taking up to three whales is likely to have no impact on the stock. It noted that it had given a solemn commitment that it will try to implement the Schedule provisions within its capacity and resources and objected strongly to countries querying its commitment. Norway and Japan drew attention to evidence presented to the Scientific Committee that harvests of cow-calf pairs would have less impact than the harvest of cows only (for the same number of takes). Both countries considered that last year's introduction into the Schedule of a sentence forbidding the take of any humpback whale accompanied by a calf was premature.

10.2.2 Commission discussions

The discussion on the need for proper regulation and strict enforcement of the aboriginal hunt and for St. Vincent and The Grenadines to honour earlier commitments was repeated in the Commission discussions, with the UK, the Netherlands and the USA speaking strongly on these issues, supported by Switzerland, Germany and Sweden. The UK considered that references made within the Sub-committee to the Scientific Committee's examination of the effects on stocks of killing calves and the possibility that the taking of calves is better for whale conservation than the taking of adults (for which the UK remains to be convinced) did not affect the obligation for St. Vincent and The Grenadines to observe the provisions of the Schedule and should not be used as a reason for ignoring it. The Netherlands and the USA also expressed concern that in addition to the taking of another humpback cow and calf, a Bryde's whale had also been killed by St. Vincent and The Grenadines in 2000.

St. Vincent and The Grenadines responded that it had dealt satisfactorily with all these points within the Sub-committee and did not wish to comment on them further. Norway and several other delegations also saw no point in repeating the Sub-committee discussions. St. Vincent and The Grenadines believed that the Commission was losing focus on its real objectives and was wasting time on small matters. It re-emphasised that it was working on developing regulations and would not be coerced by the timetables of others. It repeated that discussion of the catch of a Bryde's whale was

inappropriate at this time. Antigua and Barbuda, Japan, St. Lucia, Norway and St. Kitts and Nevis supported these comments. Japan repeated its view that the regulations meant for modern commercial whaling should not be applicable to aboriginal subsistence whaling and that effort should be spent on amending the Schedule. Japan also added that as part of the comprehensive assessment of North Atlantic humpback whales, information on the number of strandings and bycatches should be provided along with information on body length, sex and reproductive condition throughout the North Atlantic. Antigua and Barbuda asked for delegates from developed countries to have some patience with St. Vincent and The Grenadines. It noted that other Caribbean countries will be working with St. Vincent and The Grenadines during the intersessional period to develop the type of regulations that (1) can regulate that fishery and (2) will be generally acceptable within the framework of the capability of St. Vincent to enforce them.

St. Vincent and The Grenadines thanked delegations for their support. It repeated that it had been given a commitment to do its best in developing regulations and stressed the need to see regulations in the context of the local situation. In this regard, St. Vincent and The Grenadines reported that from a survey of all marine consumption patterns on the island, it was estimated that 61% of islanders consume cetacean meat. Eleven percent of these consumers did so for health-associated reasons, 16% because of tradition and 71.4% because of the taste. Less than 0.6% of these eat marine mammals on a daily basis, while 75% of the consumers do so on a monthly basis.

10.2.3 Action arising

The Commission adopted the report of the Sub-committee regarding its review of aboriginal subsistence whaling catch limits.

10.3 Catches by non-member nations

10.3.1 Report of Aboriginal Subsistence Whaling Sub-committee

The Scientific Committee had received information on aerial surveys carried out on the summer range of the Hudson Bay/Foxe Basin bowhead stock that indicated that there may be several hundred whales in the stock – the estimate provided being a minimum of 345. However, the Committee believed that more survey work and analysis was required before a reliable estimate could be provided.

The Scientific Committee considered a review of information on distribution, movements, population size, general biology, recruitment, mortality and behaviour of bowhead whales in the northwestern Atlantic. This suggested that the Baffin Bay/Davis Strait and Hudson Bay/Foxe Basin stocks both number in the low hundreds with isolated age- and sex-structured groups showing strong fidelity to

particular habitats. The Hudson Bay population's probable larger size may be due to its; nursery ground in Foxe Basin never having been commercially exploited. Killer whales may be a significant source of mortality on the small (ca 100 animals) population in the Baffin Bay/Davis Strait region, particularly on calves and juveniles in the Autumn migration.

Some concern was expressed in the Scientific Committee regarding any subsistence harvest on these stocks, even if extremely small. A Canadian scientist stated that the average annual Total Allowable Removals recommended by Canada for these stocks represents 0.2% of the estimated Hudson Bay-Foxe Basin stock and 0.02% of the estimated Baffin Bay-Davis Strait stock (one whale in thirteen years).

Although the Scientific Committee welcomed information from Canada on surveys carried out in the Hudson Bay/Foxe Basin region it agreed that more information about the Baffin Bay/Davis Strait stock is urgently needed.

During the Sub-committee meeting, the observer from Canada confirmed that the Canadian Fisheries Minister had agreed with the Nunavut Wildlife Management Board to issue one permit during 2000-2001 to take one bowhead whale or two strikes from the Hudson Bay/Foxe Basin stock if an application is made for such a permit. No such application had been received to date.

10.3.2 Commission discussions and action arising RESOLUTION ON BOWHEAD WHALES IN THE EASTERN CANADIAN ARCTIC

On behalf of the co-sponsors, Mexico, the Netherlands, Spain, Sweden and the USA, Austria introduced a Resolution on whaling of highly endangered bowhead whales in the Eastern Canadian Arctic. Austria referred to the Scientific Committee's report that the Hudson Bay-Foxe Basin whale stock is in the low hundreds, but that Canada has agreed to grant one licence on request to take one bowhead from this endangered stock. The purpose of the Resolution was to urge the Canadian Government not to issue this licence and for Canada to rejoin the IWC. Austria acknowledged that there might be an argument that the Hudson Bay stock is 'endangered' rather than 'highly endangered', but reminded the meeting that small stocks are vulnerable to even low levels of take. It also acknowledged that there might be criticism of the Resolution as it is addressed to a non-member state, but since this had been done in previous years, it should be again be possible. The co-sponsors hoped that the Resolution could be adopted by consensus.

Denmark responded that they thought it improper to address a Resolution to a non-member state, and called the co-sponsors attention to Article VI of the Convention that states clearly that Resolutions shall be directed to any or all Contracting Governments